

# Landowner Cost-Share Incentives and Payments for Ecosystem Services: A Comparison of Key Program Features<sup>1</sup>

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## Introduction

There are several ways that landowners can receive financial assistance from the government when conducting land management activities that protect environmental benefits, but not all incentive strategies are necessarily the same. This paper will compare traditional cost-share programs offered to landowners through federal agencies (e.g., USDA NRCS), and payments for ecosystem services (PES) programs, a new type of market-based incentive program. This information can help private landowners understand the advantages and limitations of both approaches and guide decision-makers in designing future conservation incentive programs.

## Environmental Quality

The term “environmental quality” is used to generally describe the condition of the environment, or ecosystem, relative to humans’ needs. Different types of land uses can result in changes in environmental quality and associated benefits depending on how intensively the land is managed (Pannell 2008) (Figure 1). For example, the conversion of a more natural ecosystem to row crop agriculture has been linked with changes in water quality as well as increases in the provision of food and fiber resources (Ritter and

Shirmohammadi 2010). The purpose of both cost-share and PES programs is to help protect environmental quality while also increasing the provision of select environmental benefits on private lands managed for different uses.



Figure 1. Examples of different land uses based on how intensively the lands are managed.

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## Cost-Share Incentives

Traditionally, the cost-share, or matching payments, approach focuses on encouraging landowners to engage in good stewardship practices so as to prevent loss of environmental benefits. More specifically, these programs offer landowners partial compensation to offset the costs of implementing best management practices (BMPs) recommended for their land use. Many landowners are already familiar with the Environmental Quality Incentives Program (EQIP) offered by the Natural Resources

1. This document is WEC370, one of a series of the Wildlife Ecology and Conservation Department, UF/IFAS Extension. Original publication date April 2016. Reviewed March 2019. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.
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Conservation Service (NRCS) and have worked with NRCS to develop a conservation activity plan (CAP) (NRCS 2015). Compensation levels are usually a set dollar value per acre and come in the form of a direct annual payment. In addition to EQIP, there are a number of other federal- and state-sponsored assistance programs that provide technical and financial assistance to landowners in the state of Florida (USDA 2009). These include programs such as the Conservation Reserve Program and the Florida Forest Stewardship Program.

## Payments for Ecosystem Services

The term “ecosystem services” describes an ecosystem management approach that is focused on linking ecosystem structure and function with the production of specific services and benefits (de Groot et al. 2010). Payments for ecosystem services (PES) is a strategy that pays landowners for the services and benefits produced by ecosystems on their land (Ferraro and Kiss 2002). The approach is “market-based” when trade negotiations about service provision are made between ecosystem service provider(s) and buyer(s) (Ferraro 2008). In the United States, the ecosystem service provider is typically a landowner, with enforceable private property rights, who can control how the land is used and thereby ensure that certain ecosystem services are provided. The buyer is typically a government agency representing public demand for ecosystem service benefits. The negotiations between the provider and the buyer center on the conditions set out in the conservation contract. Conditions typically pertain to payment levels, how payments are linked with quantified levels of ecosystem services, and monitoring/enforcement procedures that guarantee delivery of service.

A good example of a market-based PES program in Florida is the Northern Everglades – Payment for Environmental Services Program offered by the South Florida Water Management District (SFWMD). To help restore the hydro-period, or timing of flows, in the Florida Everglades, this program establishes contracts with landowners to store excess water collected during the wet season on private rangelands around Lake Okeechobee. The negotiated payment levels described in the contract are based on acre-feet of water retained over a specified time period. The quantity of water retained is measured at the weir using approved methods as the water is released into existing canals for transport. So far the program has provided approximately 6,700 acre-feet of water retention services and, since the SFWMD board approval for six new projects, the program is expected to provide an additional 95,812 acre-feet of retained water in 2016 (SFWMD 2014).

Many of the PES strategies in the United States are watershed protection programs where payment levels are linked with pounds of nutrients retained by ecosystems that have been managed for less intensive land uses (Breetz et al. 2004). Outside the United States, other types of PES strategies have been used to increase the provision of a range of ecosystem service benefits. For example, several PES programs in Queensland, Australia, provide annual payments to landowners for maintaining wildlife habitat for imperiled species (Moon et al. 2012). PES programs have been found to be effective in helping government agencies meet conservation goals while providing landowners with additional sources of income (Ferraro and Kiss 2002). However, the PES strategy does not offer a cure-all solution to the problems associated with ecosystem conservation, but is one among a diverse set of potential policy solutions (Muradian et al. 2013).

## Comparing the Programs

Cost-share and PES programs are similar in several ways. The goal of both approaches is to ensure the protection of environmental quality or the provision of environmental benefits for the public. Both programs recognize private landowners as providers of environmental benefits, and both programs use voluntary incentives to encourage changes in the landowner’s behavior (Table 1). There are several differences among key program features which has implications for how these programs can be used to help meet conservation goals.

The foremost way these programs differ relates to the conditions of the conservation contract and associated payment levels. Cost-share contracts require the landowner to conduct specific land management activities in order to receive financial compensation or assistance.

In a cost-share contract, the level of compensation is typically based on the landowner’s expected per-acre costs, is set by the agency, and is not negotiable. The subsequent changes in environmental benefits are not quantified and do not have any bearing on whether or not the landowner receives compensation, as long as the management activity is undertaken according to the contract. In contrast, under a market-based PES program, payment levels are directly linked with the production of quantified levels of a defined ecosystem service(s), and providers (e.g., landowners) offer competitive bids for level of service provided. To ensure service provision, the landowner may need to conduct certain land management activities and monitoring activities; however, payment levels are linked to the ecosystem

services provided and **not** to pre-defined specific land management activities (such as weed removal).

Under certain conditions, market-based PES programs can be an improvement over cost-share programs. Namely, a market-based PES approach can help prevent land-use conversion to more intensive uses (e.g. urban development or row crops) by offsetting all land stewardship costs and even allowing landowners to potentially profit from being an ecosystem service provider (as opposed to the landowner profiting from other types of land uses like development). However, the potential for landowners to profit is dependent on the level of public demand for the ecosystem service and the number of available service providers (i.e., landowners whose lands can provide the ecosystem service) to help meet that demand (Ferraro 2008). In other words, this approach can only provide additional conservation if the ecosystems on the lands targeted by the program are at a high risk of being converted and the landowners are not willing to engage in programs that provide more permanent conservation outcomes (e.g., conservation easement). In some cases, the personal motivations of landowners may coincide with the conservation efforts of sponsoring agencies, and the landowner may only need assistance with covering certain land stewardship costs (e.g., BMPs).

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Table 1. Similarities and differences in key program features between Payments for Ecosystem Services (PES) and a typical cost-share program.

Key Program Features	PES	Cost-Share
Prevents loss of environmental benefits associated with certain land uses.	X	X
Payments are set and directly linked with land stewardship/best management practices.	-	X
Providers are compensated for part of the management costs.	-	X
Promotes production of certain ecosystem services and benefits.	X	-
Payments are directly and dynamically linked with provision of environmental benefits.	X	-
Payment levels are negotiated between providers and buyers.	X	-