10-DCR-075
BMP Summary – Cover Crops

Technical Summary: Economic Advantages of Cover Crop Practices

Abstract
Planting a system of year-round cover reduces nonpoint source pollution by preventing soil erosion, slowing runoff and taking up excess nitrogen that otherwise would leach into the water table. Farmers and landowners may hesitate to plant cover crops because of foregone revenue from cash crops, timing issues relative to cash crops, and the costs of establishing a cover crop.

Producers who qualify for state and federal cost-share programs receive funding that helps cover the expense of seed and seeding. In addition, many farmers will experience a long-term economic benefit, because subsequent cash crops can demonstrate improved yields over time with decreased fertilizer and water inputs.

Qualifying Practices
Farmers and landowners can qualify for funds through the Virginia Agricultural Best Management Practices Cost-Share Program when they adopt these cover crop BMPs, which are described in detail in the *Virginia Agricultural BMP Manual*:

- SL-8, Protective Cover for Specialty Crops (vegetables and tobacco)
- SL-8B, Small Grain Cover for Nutrient Management
- SL-8H, Harvestable Cover Crop
- WQ-4, Legume Cover Crop
- SL-1, Permanent Vegetative Cover on Cropland (State)

Production Benefits
Experts have suggested that planting cover crops–regardless of their profitability–should be standard operating procedure on well-managed farms. Cover crops are a relatively inexpensive practice that offers multiple, valuable results (Lotter et al, 2003; Sustainable Agriculture Network, 2007). Production benefits include:

- increased soil organic content,
- improved soil structure and tilth,
- reduced soil erosion, and
- better moisture retention and drought resistance.

Over a period of years, planting a system of continuous, year-round cover can lead to reduced fertilizer costs and increased yields for subsequent cash crops, particularly when no-till cultivation methods are employed (Davis, 2008). New evidence suggests that the profitability of cover crops increases as the biomass provided by cover crops increases (Morton and Bergtold, 2006).

Economic Benefits

The economics of cover crops vary from practice to practice and from farm to farm. In general, they are affected by the acreage involved, the cash crop system, and the type of cover crop that is seeded. The economic pros and cons of cover crops are summarized in Table 1.

Table 1: Economic Pros and Cons of Cover Crops

Positive Economic Effects	Negative Economic Effects
Increased cash crop yields Greater yield stability (for ongoing systems) Reduced fertilizer inputs/costs due to N capture Decreased herbicide use due to weed suppression Increased organic matter in soil holds water, resulting in decreased drought damages Reduced soil erosion Cost-share funding	Cover crop establishment costs (high for legumes) Impeded cash crop establishment due to slow soil warming Possible difficulties incorporating crop residues into soil Difficulties controlling cover crop seed production Opportunity cost of forgoing cash crop production

Adapted from Snapp et al., 2005

With the cover crop cost-share reimbursement rates for Program Year 2013, farmers can receive $35/acre for SL-8, Cover for Specialty Cropland and WQ-4, Legume Cover Crop. A SL-8B, Small Grain Cover Crop for nutrient management and SL-8H, Harvestable Cover Crop both receive an incentive payment of $25/acre. Those who implement SL-8B can qualify for an additional $25/acre by planting early and an extra $10/acre by planning special rye cultivars.

Case Study. A farmer who enrolls in the Small Grain Cover Crop practice potentially can receive cost-share reimbursement that more than compensates for the expense of establishing the cover crop. This example assumes that the farmer qualifies for additional bonuses, and that lime and fertilizer are not needed to start the cover crop.

Cost-Share Reduces Cover Crop Installation Costs

Estimated establishment cost/acre:	$59.50
Cost-Share base rate/acre:	-$25.00
Cost-Share bonus/acre, early planting:	-$25.00
Cost-Share bonus/acre, special rye cultivar:	-$10.00
Installation costs are covered and potential profit/acre is:	*$0.50*

Strategies for Increasing Cover Crop Cost-Effectiveness

While the costs of establishing a cover crop generally are modest compared to those for other BMPs, these expenses–or the foregone income from a cash crop–still may be a barrier for some farmers. The strategies described below can help boost the long-term profitability of cover crops.

Continuous no-till. Conservation tillage systems, such as continuous no-till, maximize the benefits of the biomass created by cover crops. They also eliminate the operating costs associated with conventional tillage, which are typically $15/acre or more (Thomason, 2008).

Longer crop rotations. Extending the length of time that crops are growing in the field has been shown to increase yields (Genrich, 2006). This was how most farms in America operated before World War II: long-term rotations with perennial legumes, where the

rotation length helped prevent problems with nutrient exhaustion, pests and disease (Faulkner, 2008).

Suggested Approach to Farmers and Landowners

Participation in the Virginia Cost-Share Program can help offset the costs of establishing cover crops. Farmers can further enhance their economic benefit by making cover crops part of a no-till system. Virginia's Cost-Share Program provides funds for continuous no-till in conjunction with cover crops. In addition, under the federal EQIP administered by the Natural Resources Conservation Service, some producers may qualify for funding to adopt improved cropping systems featuring less tillage, more residue, fewer fallow periods, and more cropping rotations and diversity.

A comprehensive approach that includes consideration of longer crop rotations and no-till practices has the greatest likelihood of increasing farm income. Partnership with NRCS and Extension can help producers access the additional technical resources they will need to develop, implement and manage the effective integration of appropriate cover crops into their existing cropping systems.

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