

## Water Quality Enhancement Activity – WQL16– Use of Legume Cover Crops as a Nitrogen Source



### Enhancement Description

This enhancement is for the use of legume cover crops as a primary source of nitrogen in a cropping system. Use of legume cover crops is applicable to conventional, specialty and organic crop production systems.

### Land Use Applicability

This enhancement is applicable to cropland.

### Benefits

Approximately 35,000 cu ft natural gas is required to produce one ton of nitrogen fertilizer. Legume cover crops can provide 50 to 100 lbs of plant available nitrogen per acre to reduce off-farm energy requirements.

### Criteria

- Plant and manage legume cover crops prior to all field or specialty crops raised that require the use of commercial nitrogen.
- Estimate nitrogen credits from the leguminous crop. The legume cover crop must be selected and managed to supply at least 75 lbs of N. Nitrogen credit estimate should consider:
  - The amount of biomass produced (plant height and maturity)
  - The nutrient composition of the cover crop (for example, clover vs. vetch)
  - The decomposition rate of the cover crop during the cash crop growing season based on incorporation of the residue or being left on the soil surface after planting. Note: An example procedure is outlined in “*Managing Cover Crops Profitably, 3<sup>rd</sup> Edition*” (Sarrantonio, 1998)
- Determine additional nitrogen application rates based on guidelines of the state Land Grant University. Nitrogen application rates must be reduced by at least 75 lbs. to account for the nitrogen available from the legume cover crop.

### Documentation Requirements

1. Written documentation for each year of this enhancement describing the following items:
  - Type of legume cover crop planted
  - Calculations for estimating available nitrogen
  - Application rates of additional nitrogen by field
  - Realistic yield goals for field or specialty crop grown
2. A map showing where the enhancement is applied