ARKANSAS Discovery Farms

# CONSERVATION PRACTICES INSTALLED IN THE ILLINOIS RIVER WATERSHED

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# Arkansas Discovery Farms in the Illinois River Watershed

## Activity Report October 1, 2012 to September 3, 2015

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## Conservation Practices Installed in the Illinois River Watershed

The current NRCS Eucha-Spavinaw IRW Initiative offers an innovative voluntary approach to address regional water quality issues related to agricultural nonpoint source pollution, via implementation of targeted conservation or conservation practices (CPs). Previous federal financial assistance programs have lacked an adequate monitoring program necessary to assess the impact of these conservation efforts on local and regional water resources. Quantifying impact is a critical component to demonstrating the effectiveness of conservation practices in terms of justifying expenditures and implementing future programs.

While there has been edge-of-field assessment of poultry litter management on nutrient runoff and in-stream monitoring of nutrient discharge, limited information is available to assess the effectiveness of current and future CPs implemented in ESIRW. From a listing of planned CPs for Benton and Washington Counties (Table 9), several practices stand out in terms of extent of coverage and implementation. For instance, in both counties there are 15,641 acres planned for use of alum amendment of poultry litter (CP 591) to mitigate nutrient loss, with 82% in Benton County alone. The other dominant CPS implemented appear to be fencing (382) and prescribed grazing (528), with nearly 30 miles of fencing and 8,500 acres of prescribed grazing planned in ESIRW (Table 9). As edge-of-field monitoring of the effectiveness of fencing and prescribed grazing will require more resources than is available, this project will focus on alum treatment of poultry litter.

Table 9. Totals of planned practices for Benton and Washington Counties within the ESIR watershed.

| Code | Practice | Acres/Number/Feet |
|---|---|---|
| | **Benton County** | |
| **313** | Waste storage facility | 13 |
| **316** | Animal mortality facility | 4 |
| **317** | Composting facility | 1 |
| **328** | Conservation crop rotation | 286 acres |
| **340** | Cover crop | 1,621 acres |
| **378** | Pond | 7 |
| **382** | Fence | 57,720 ft. |
| **512** | Forage and biomass planting | 4,822 acres |
| **516** | Pipeline | 11,751 ft. |
| **528** | Prescribed grazing | 1,614 acres |
| **561** | Heavy use area | 61.7 acres |
| **590** | Nutrient management | 65 acres |
| **591** | Amendments for treatment of agricultural waste | 12,751 acres |
| **614** | Water facility | 25 |

| Code | Practice | Acres/Number/Feet |
|---|---|---|
| | **Washington County** | |
| **313** | Waste storage facility | 4 |
| **316** | Animal mortality facility | 2 |
| **317** | Composting facility | 3 |
| **378** | Pond | 4 |
| **380** | Windbreak/shelterbelt | 2,737 ft. |
| **382** | Fence | 96,830 ft. |
| **393** | Filter strip | .1 acre |
| **472** | Access control | 67.9 ac |
| **511** | Forage harvest management | 254 acres |
| **512** | Forage and biomass planting | 590 acres |
| **516** | Pipeline | 18,316 ft. |
| **528** | Prescribed grazing | 6,896 acres |
| **533** | Pumping plant | 5 |
| **558** | Roof runoff structure | 1 |
| **561** | Heavy use area | .1 acre |
| **580** | Stream bank and shoreline protection | 450 ft. |
| **590** | Nutrient management | 76 acres |
| **591** | Amendments for treatment of agricultural waste | 2,890 acres |
| **614** | Water facility | 27 |
| **633** | Waste utilization - 25 contracts | 1,896 acres |
| **642** | Water well | 2 |

**Table 2. Best management practices to minimize nutrient runoff potential from poultry production facilities.**

| Type | Description | Action | Cost | Reduction potential |
|---|---|---|---|---|
| **Prevent P Movement with Runoff** | French grain under roof line | Capture clean water and directs from operational area | Medium | High |
| | Roof gutters over fans | Minimizes direct runoff potential of ground immediately below fans | Low | Medium. Source still present. |
| | Trays of residuals below fans | Binds P deposited in dust | Medium | High. P can be removed with residual. |
| | Larger concrete pads outside house entrance | Provides a larger area that can be scrapped clean of spillage after bird removal and house cleanout | Medium | High. |
| | | | | |
| **Control / Reduce P Concentration in Runoff** | Maintain grassed (non-grazed) waterways between houses and those directing runoff away from houses | May already exist and should be managed to maintain good grass cover | Low | Medium. Reduces runoff energy and erosive power. Uptakes and dilutes transported P. |
| | Aeration of land around houses | Decreases potential for runoff and may improve grass growth and cover | Low | Medium. Less runoff translates to less nutrient loss risk. |
| | Spread residual around houses | Binds P that may be in runoff but does not remove P from the system | Medium | Medium. |
| | | | | |
| **Trap P in Runoff** | Infiltration zone intercepting runoff | Collects nutrient rich runoff. Pond must be dredged and material handled and land applied in a manner to not cause risk to water quality | Low / high [1] | High. |

[1] Costs are low if already exists otherwise medium or high.