

Project Update: Alternative Technologies for Runoff Control at Beef Feedlots

January 31, 2006

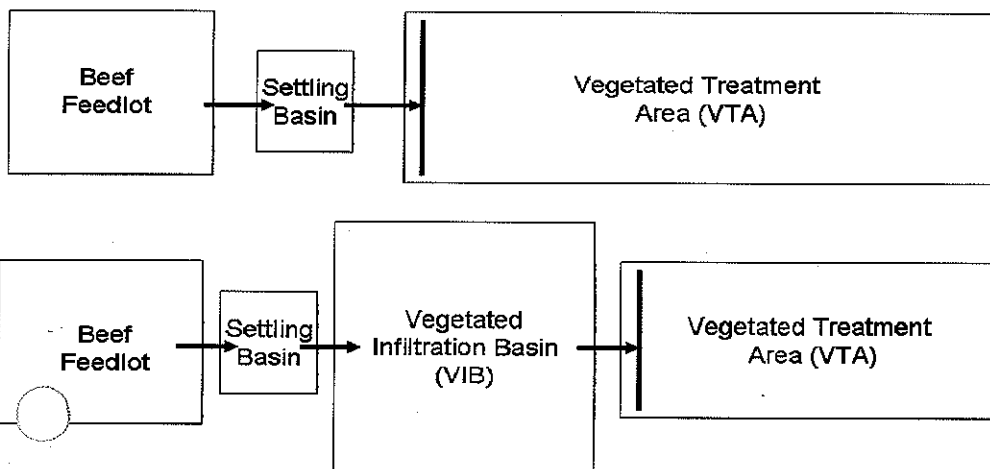
Two alternative technologies are being tested in the pilot project studies taking place at five Iowa feedlots. They are:

- **Vegetated Treatment Areas (VTAs)**

A VTA consists of an area level in one dimension with a slight slope (<5%) in the other. The area is planted and maintained with dense vegetation. Runoff from the feedlots collects in a settling basin to remove solids and is then pumped or gravity fed to a spreader across the top of the VTA. Pollutant removal from the effluent can occur via several processes; filtration as settling basin effluent flows through the vegetation, attachment to plants and soil during runoff infiltration, and plant uptake of nutrients. The VTAs are designed to be as effective as preventing discharges as a containment system designed against a 25yr -24hr storm event.

- **Vegetated Infiltration Basins (VIB) in series with a VTA**

A VIB is a bermed area designed for maximum infiltration of settling basin effluent, and is placed in front of a VTA. It's primary purpose is to lengthen the duration of runoff flow and reduce runoff flow rate during a rainfall event, thus allowing for a VTA of smaller surface area. Tile lines below the VIB surface collect runoff water where it is then routed to a VTA. The VIB is planted and managed to maintain dense vegetation.



Project Status:

- Funding is now in place from Iowa Cattleman's Association
- Project team has been assembled including project coordinator, research technician, & graduate student
- Initial soil sampling at Central IA 2 site is completed
- Monitoring equipment has been selected for the constructed sites
- Monitoring equipment is in the process of being bid and ordered

The sites detailed below will be monitored for two years:

	Status	Permitted	Permit Effective	# of Cattle On Site	# of Cattle on research area	AT Systems On Site	AT System for Research
Central IA, 1 Lytton, IA	Designed & Constructed	Yes	July 1, 2006	1400	1000	3 VTAs	1 VTA
Central IA, 2 Nevada, IA	Designed & Constructed	Yes	Nov. 15, 2006 2005	2400	800	5 VIBs 3 VTAs	1 VIB - 1 VTA
Northwest IA, 1 Haywarden, IA	Designed & Constructed	Yes	July 1, 2006	1400	800	5 VTAs	1VTA
Northwest IA 2 Inwood, IA	Designed & Constructed	Yes	July 1, 2006	4000	4000	1 VIB - 1 VTA	1 VIB - 1 VTA
Southwest IA 1 Villisca, IA	Designed, Contractor hired	In Process		2240	2240	1 VTA	1 VTA

Additional Research Needs:

- Determine the effectiveness of a VTA with a cropping system vs. a reed canary/ brome grass system
 - High level of producer interest for this design
 - Allows removal of less crop ground from production
 - Need research to determine feasibility of approach

Central IA 2 site with multiple AT systems has ability to test a cropped VTA

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Project Update: Alternative Technologies for Runoff Control at a Southwestern Iowa Beef Feedlot

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This site is not a part of the ICA funded project. The producer has been using a non-engineered vegetated treatment system for ~30 years. The current system is similar in some respects to those that are being implemented on the ICA funded research sites. This system is unique in that it does not use traditional settling basins. The producer plans to install an engineered system similar to the system that is already in place. The planned system will use settling benches rather than settling basins. Though settling benches have not yet been tested, if they are determined to be as effective as the traditional settling basin they will be a less expensive alternative.

Southwestern IA Site:

- Offers a unique design feature that could reduce the costs for implementing a VTA system
- Site intends to use settling benches to reduce the solids in the runoff instead of settling basin
- Settling benches should be less expensive to install than settling basins
- IDNR plans to issue permit on February 13, 2006
- Current funding for this site allows for monitoring of the settling bench in combination with the VTA.

Project Status:

- Funding provided by Iowa legislature
- Project team has been assembled including project coordinator & research technician
- Monitoring equipment will be selected upon receipt of final system design
- Initial soil sampling will occur at sight in spring

Site will be monitored for two years:

	Status	Permitted	Permit Effective	# of Cattle On Site	# of Cattle on research area	AT Systems On Site	AT System for Research
Southwest IA 2 Tabor, IA	Designed & Contractor Selected	In Process	To be assigned	5500	1000	6 VTAs	1 VTA

