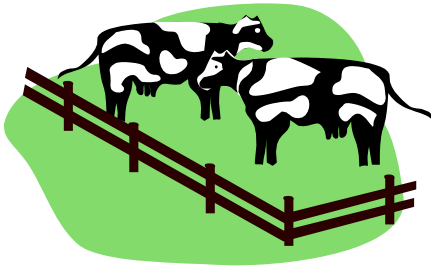


Animal Heavy Use Area (AHUA) Management

By: Pete Vanderstappen, PE

USDA-NRCS Ag Engineer

NRCS Natural Resources Conservation Service

Overview- What we hope to accomplish

- Define what an AHUA?
- Review the process of evaluating a site
- Review the various options; Pro's and con's
- Discuss some typical situations
- Show some implemented BMPs
- Wrap-up

NRCS definition … (AFO)

- EPA defines these areas as Animal Feeding Operations (AFOs). An AFO is a lot or facility where the following conditions are met:
  - Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period, and
  - Crops, vegetation, forge growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility

Act 38 Definition… (ACA)

- In Act 38, section 83.201 Definitions
  - Animal concentration areas—

    (i) Barnyards, feedlots, loafing areas, exercise lots or other similar animal confinement areas that will not maintain a growing crop, or where deposited manure nitrogen is in excess of crop needs.

    (ii) The term excludes areas managed as pastures or other cropland.

    (iii) The term excludes pasture access ways, if they do not cause direct flow of nutrients to surface water or groundwater.

Ch 102 Definition…… (AHUA)

- 102.1. Definitions
  - Animal heavy use areas
    - (i) Barnyard, feedlot, loafing area, exercise lot, or other similar area on an agricultural operation where due to the concentration of animals it is not possible to establish and maintain vegetative cover of a density capable of minimizing accelerated erosion and sedimentation by usual planting methods.
    - (ii) The term does not include entrances, pathways and walkways between areas where animals are housed or kept in concentration
  - **Conclusion: Definitions similar, but with different focus for regulatory purposes.**

First step, Initial evaluation

- Identify potential AHUA sites
- Are they part of a E&S plan or NRCS conservation plan?
- Evaluate if the size and location on the landscape will result in sediment moving off the area
- Those with issues will then need to be further evaluated and a plan of action developed with the owner
- Lets look at some example sites..

Scenario #1


Scenario #2


Scenario #3
8 2 1 02

Scenario #4

Scenario #5

Scenario #6

Stabilized Stream crossing but…

Erosion and sediment control requirements under CH 102

- Section 102.4 (a)(4)
  - (iii) For **animal heavy use areas**, the E&S Plan must identify BMP's to minimize accelerated erosion and sedimentation. BMP's and their design standards are listed in the current amended and updated version of the appropriate National Resources Conservation Service conservation practice standards **such as** Heavy Use Area Protection, Critical Area Planting, Fencing, Waste Water Treatment Strip, Constructed Wetlands, Use Exclusion, Animal Trails and Walkways, Diversions and Roof Runoff Structure.

General plan to handle AHUA's

- Write an E&S plan to minimize sedimentation and erosion on AHUAs.
- Use BMP's and their design standards to accomplish this goal
- These BMP's include practice standards such as Heavy Use Area Protection, Critical Area Planting, Fencing, Waste Water Treatment Strip, Constructed Wetlands, Use Exclusion, Animal Trails and Walkways, Diversions and Roof Runoff Structure.

General plan to handle AHUA's

- Or could develop a NRCS conservation plan that addresses these areas and several others
  - Not all NRCS plans will address this – Producer must be ready, willing, and able
- In a plan the AHUA can be addressed as part of the headquarters or pasture
- But first let's take a look at the process.

The Process

- Evaluate the site, walk the property
- Gather information from the landowner
- Discuss the pro's and con's for various types of AHUA's that may fit the property
- Work thru the process to help the landowner make a decision
- Document planned BMP's to solve resource concern
- In some cases, the NRCS plan may not meet CH 102, the owner choices not to address it.

The Process, continued…

- AHUAs commonly occur in BOTH Pasture and Headquarters
- AHUAs can be corrected in BOTH Pasture and Headquarters
- Pasture determinations may require input from NRCS grazing specialists
- Several options will be explored

Pastures used to avoid AHUA's

- Managing as a pasture.
  - Manage pasture following some general rules:
    - Maintain vegetation
    - Keep animals off the area when grass is less than 3" in height
    - Keep animals off the site when access will destroy the vegetation (i.e. during wet periods or drought conditions)
    - Address any gullies
  - This area is <u>not allowed</u> to revert back to a brown lot
  - Begs the question? What is a pasture?

Scenario #7

Is this a pasture?

Scenario #8

Is this a pasture?

Scenario #9

Is this a pasture?

Dealing with AHUA's in Pastures

- Reference Standard 528 Prescribed grazing
- Generally requires some significant management changes
- Typical BMP's
  - Implement Prescribed Grazing (528)
    - Rotational Grazing System
    - Limited Access
    - Increased Pasture Acreage
  - Fencing
  - Animal Trails and walkways
  - Stream Crossings
  - Buffers

Example of Rotational Grazing System on Pasture

Managing AHUA's within Pastures

- This can mean continuous grazing, intensive grazing, or rotational grazing
- Advantages
  - Required when planning pasture in NRCS conservation plan
  - Includes a Contingency plan to address severe drought, wintering areas, wet periods, etc.
- Plan can include Heavy Use Area Protection (561) in pasture
- **Or** improve ground cover, minimize concentrated areas, keep away from sensitive areas, maintain good cover between concentrated area and sensitive areas

Contingency Plan Example: Rotational feeding

Managing AHUA's

- **561 – NRCS Heavy Use Area Protection Practice, Unpaved**
- Use can not exceed 150 days per year
- Rotate use to no more than once every 4 years
  - Unless soil tests prove phosphorus is not an issue
- Divert surface water, slope range 1-8%, not in drainageway
- 150' vegetative buffer located down-slope and on the contour or meet PA 635 Waste Treatment Strip
  - Sheet flow onto buffer
  - Animal access shall not destroy area in buffer (fenced)
- Accumulated manure and feed to be removed and vegetation established for next growing season
- Additional criteria listed in standard.

Managing AHUA's

- **561 – NRCS Heavy Use Area Protection Practice, Unpaved**
- Advantages
  - Low-cost, no hard engineering
  - Typically requires fencing, re-seeding, and animal trials and walkways
- Disadvantages
  - Very high Management Level
  - Seasonal use
  - Large set-backs
  - Rotational requirement
  - Require larger areas
  - Difficult to clean-up
  - Need to re-seed

Managing AHUAs

- **561 – NRCS Heavy Use Area Protection Practice, Paved**
- Owner desires animal use year around.
- Typical plan shows a small area as a paved AHUA with the remaining area managed as pasture.
  - Follows the NRCS Standard 561 for paved option
    - Typically a concrete area
    - Runoff directed to a ….
      - Waste storage facility
      - Or to a Waste Treatment Strip
    - Runoff avoided by
      - Roofing entire area (Zero Discharge)
      - Diverting around site

Managing AHUAs

- **561 – NRCS Heavy Use Area Protection Practice, Paved**
- Advantages
  - Animals can be confined on an area that collects all the wastes and runoff up to the 24hr-25yr storm
  - Allows owner to limit access to pasture when soil conditions are poor or no vegetation is available to keep that area as a non AHUA
- Disadvantages
  - High cost for installation
  - Results in more wastes to handle
  - Animal health may be an issue

Typical BMP's Common to Headquarters

- Heavy Use area Protection
- Diversions
- Roof Runoff management
- Waste storage facility
  - Unroofed or open
- Underground outlets
- Structures for water control
- Vegetative treatment areas
- Waste transfer

Diversion, Animal Trail & Walkways, Heavy Use Area, & Fence

NRCS Natural Resources Conservation Service

Heavy Use Area Protection (561) above Vegetated Treatment Area (635) using a slotted curb

Manure Transfer (634)
Gated pipe above a Vegetated Treatment Area

Concrete tanks- Waste Storage Facility (313)

HDPE lined Storages

Before…

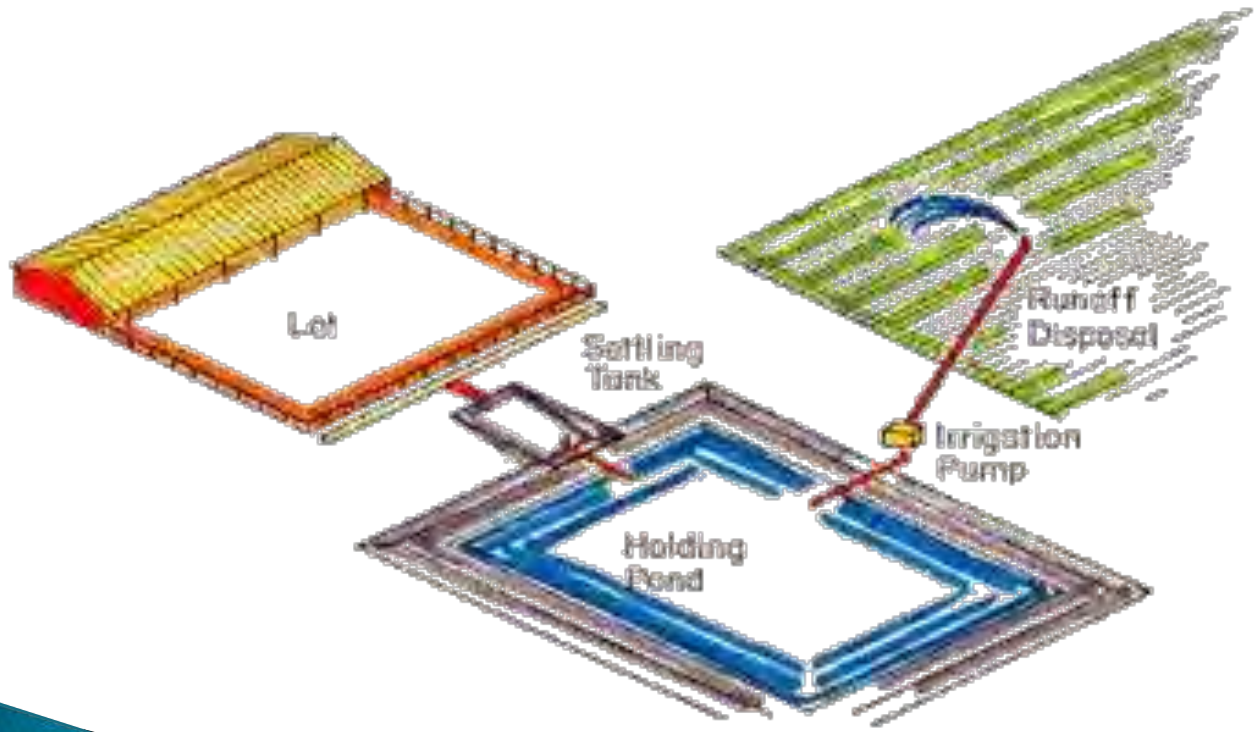
After…..

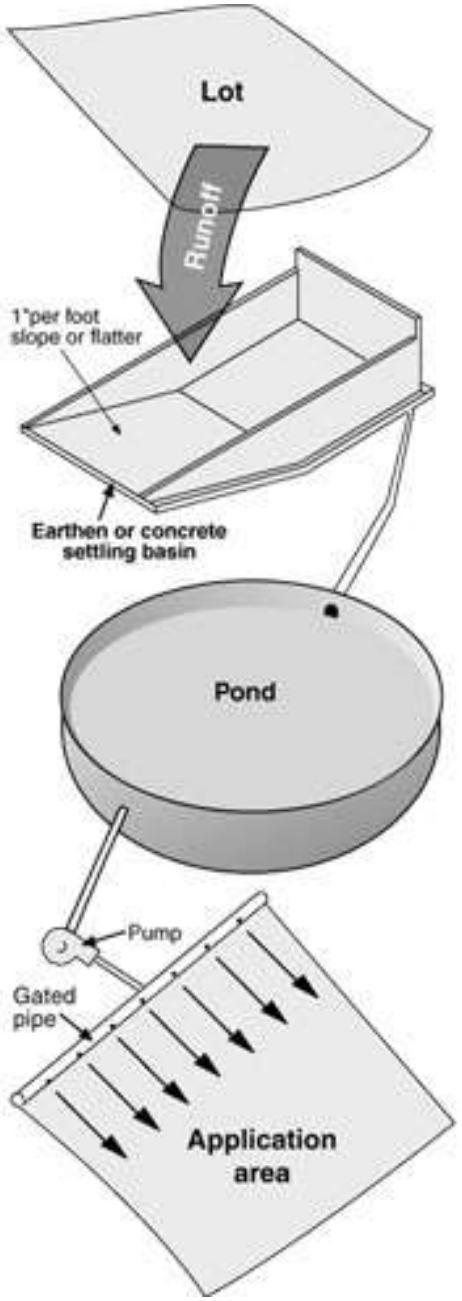
Roofed 561

561 – Continuous use, earthen

- Must meet the paved criteria under the Practice Standard 561
- Soils must be **improved** (not concrete, but improved earthen surface)
- Site re-graded for drainage
- Off-site water diverted
- Runoff directed to a settling basin
- Basin discharged into a waste storage facility

Typical layouts





561 – Continuous use, earthen

- Advantages
  - Improved soil is a lower cost than concrete
    - 12” of compacted soil required
  - Fits larger scale operations
    - Beef finishing
- Disadvantages
  - Requires a greater area per animal
    - Takes more land, high maintenance
  - Results in more waste water to handle
    - Greater costs for manure handling and storage

Example Site: PDA Livestock Evaluation Center

Wrap-up

- AHUAs come in various sizes and situations
- Concerns vary based on Regulation and/or Agency
- Various BMPs address how to manage AHUAs
- General approaches
  - Eliminate/reduce
  - Relocate
  - Rotate
  - Vegetate
  - Manage

Thank you