

### Livestock Shelter Structure

A portable metal frame structure with a mesh fabric roof to provide shade for livestock. For a complete version of the practice standard, see web site [HTTP://WWW.NRCS.USDA.GOV/TECHNICAL/EFOTG/](http://www.nrcs.usda.gov/technical/efotg/).

#### Purpose

- To provide protection for livestock from excessive heat.
- To protect surface waters from nutrient and pathogen loading.
- To protect wooded areas from accelerated erosion and excessive nutrient deposition by providing alternative livestock shade location.



Figure 1. Cattle loafing in shaded area

#### Where Used

This practice applies on pastures and range land uses.

#### Conservation Management System

Livestock shade structures are integrated in the conservation management system to facilitate prescribed grazing to protect water quality and soil health. This practice must be used in conjunction with exclusion of animals from sensitive areas.

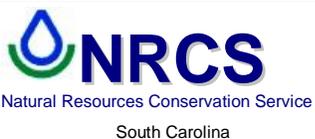


Figure 2. Cattle accessing riparian area for shade and water.

Equip the portable structure with runners or wheels to facilitate transport. A plan for movement should be in accordance with a grazing plan and should facilitate the distribution of manure across the grazing land.



Figure 3. Erosion and excess nutrient deposition may occur in wooded areas.



**LIVESTOCK SHELTER STRUCTURE - 576**  
**Conservation Practice Specification/Job Sheet**

JANUARY 2015

|                        |  |                            |  |           |  |
|------------------------|--|----------------------------|--|-----------|--|
| Client/Operating Unit: |  | Tract:                     |  | Farm No.: |  |
| Farm/Ranch Location:   |  | Field No.:                 |  | Program:  |  |
| Specifications Date:   |  | Planned Installation Date: |  |           |  |

**Installation shall be in accordance with the following specifications, drawings, and other requirements. NO CHANGES ARE TO BE MADE IN THE SPECIFICATIONS WITHOUT PRIOR APPROVAL BY AN AGENCY REPRESENTATIVE.**

**Specifications**

**Livestock Type (mark all that apply):**

Cattle/Horses,  Swine,  Sheep/Goats,  Poultry  Other \_\_\_\_\_

**Table 1 – Minimum Shade Requirements**

Provide shade for at least 75% of the herd. Maximum size for one structure is 25ft wide by 50ft length.

| Animal Type      | Minimum Shade Requirements   |             | Number of Animals | Percent of Herd | Shade Requirement |
|------------------|------------------------------|-------------|-------------------|-----------------|-------------------|
|                  | Area (ft <sup>2</sup> /head) | Height (ft) |                   |                 |                   |
| Dairy, beef, or  | 35-50                        | 10 – 12     |                   |                 |                   |
| Swine, sheep, or | 10-15                        | 7           |                   |                 |                   |
| Poultry          | 3 - 7                        | 7           |                   |                 |                   |

## Specifications (continued)

1. Materials:

Construct the shade structure of durable materials that are suitable for a minimum structure life of 10yrs. Fabric or other non-structural material may need to be replaced in accordance with its anticipated lifespan.

**Structural Members:** The main structural members shall be constructed of 2 inches minimum, nominal diameter steel pipe. Longitudinal members of the top frame shall be constructed of 1 ¼ inches minimum diameter steel pipe.

All structural members shall be galvanized or otherwise protected with suitable protective paint coatings including a primer coat and two or more final coatings. Galvanized coatings damaged or destroyed by welding shall be thoroughly wire brushed and painted with at least two coats of zinc dust-zinc oxide primer.

Vertical member spacing shall not exceed 21 feet in the longitudinal direction and 15 feet in the traverse direction. The length of vertical members shall not exceed 12 feet except that length may be increased to 13 feet to provide slope (pitch) to the top of the structure.

**Fabric:** Mesh shade fabric shall be suitably constructed of high quality materials and shall be recommended by the manufacturer to be suitable for this use. The mesh fabric shall provide 80 percent shade. Polypropylene fabric or similar materials that are highly resistant to outdoor exposure are acceptable cover material

The shade fabric shall be secured to the structural steel members so as to provide adequate and even tension on the fabric in accordance with the manufacturer's recommendations.

2. Describe placement, location, dimensions and materials and frequency of use (e.g., continuous, specific season, specific dates):

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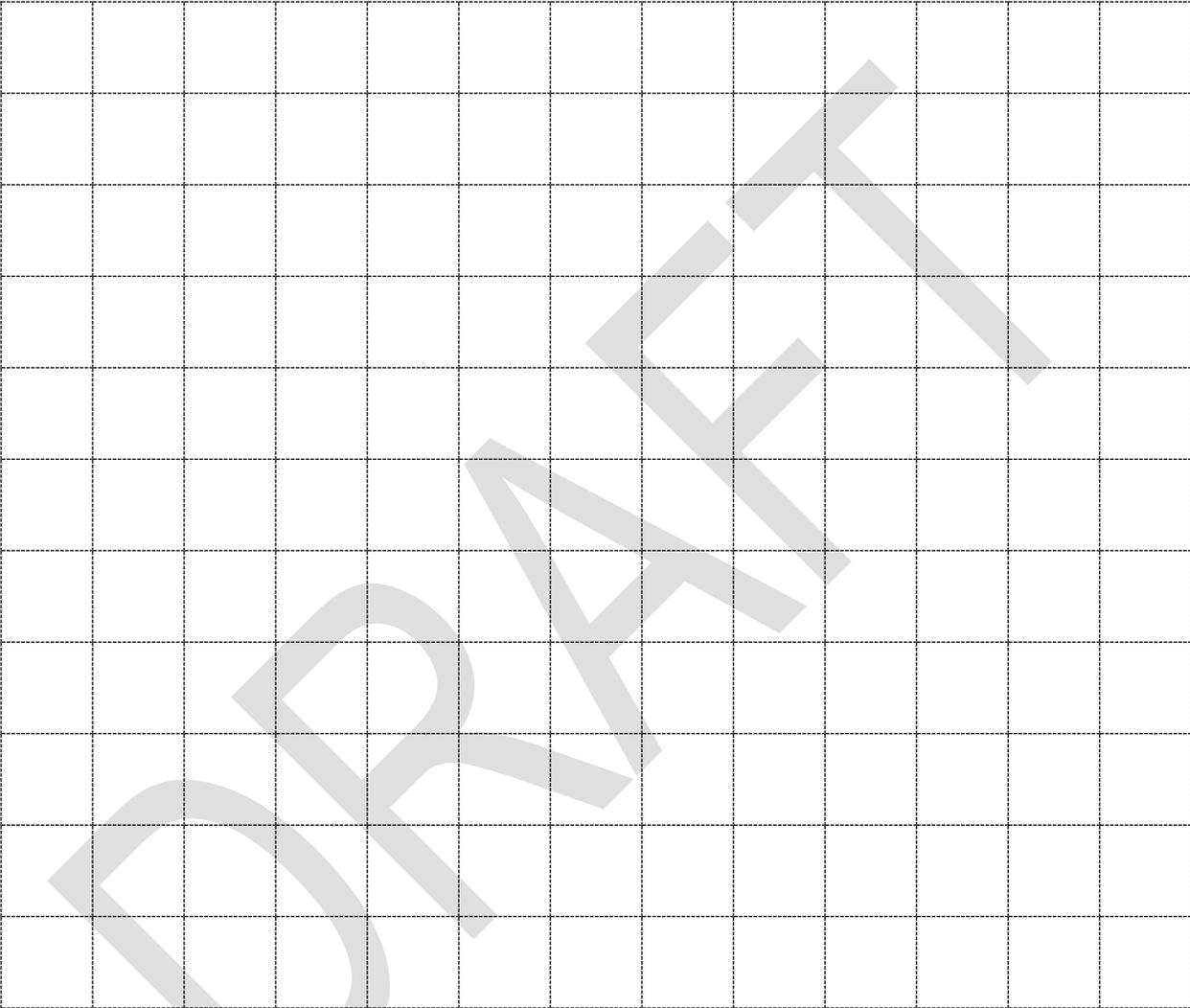
## Operations and Maintenance

- Inspect the structure annually and after major storm events.
- Tie down or preferably store shade structure(s) during significant wind events.
- Maintain the structural and fabric components through the practice lifespan (10 years).
- Replace and/or repair maintenance coatings on structural steel components as necessary.
- Periodically tighten the shade cloth to minimize wind damage.
- Replace the fabric cover when it has deteriorated due to environmental conditions.
- Move the structure(s) before the area underneath is denuded of cover.
- Removal and storage of the mesh shade fabric during the winter months can extend the life of the cloth.
- Other site specific items:

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**Layout Sketch and Drawing**  
(Provide sketch, drawings, maps, and/or aerial photos.)

Scale 1"= \_\_\_\_\_ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



**References:**

- eFOTG, <http://www.nrcs.usda.gov/technical/efotg/>

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## Practice Specifications Approval and Completion Certification

### DESIGN AND INSTALLATION/LAYOUT APPROVAL:

I have job approval authority and certify this practice has been designed with specifications to meet the conservation practice standard and that the client has been advised of installation and layout elements:

|   |  |       |
|---|--|-------|
| NRCS Representative name and title (type or print): |  |       |
| NRCS Representative Signature:                      |  | Date: |

### LANDOWNER/OPERATOR ACKNOWLEDGES:

- a. They have received a copy of the specifications and understand the contents including the scope and location of the practice.
- b. They have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS.
- d. Maintenance of the installed work is necessary for proper performance during the life of the practice. The practice life is 10 years.

I have reviewed all specifications and agree to install as specified:

|  |  |       |
|--|--|-------|
| Landowner/operator name and title (type or print): |  |       |
| Landowner/operator Signature:                      |  | Date: |

### RECORD OF COMPLETION AND CHECK OUT CERTIFICATION:

| Installed Structures: | Date Completed by Client: | Date Certified: | Approver's Initials: |
|-----------------------|---------------------------|-----------------|----------------------|
|                       |                           |                 |                      |
|                       |                           |                 |                      |
|                       |                           |                 |                      |

I have job approval authority and certify this practice has been applied and meets design specifications:

|   |  |       |
|---|--|-------|
| NRCS Representative name and title (type or print): |  |       |
| NRCS Representative Signature:                      |  | Date: |
| Notes:  |  |       |