Lighting and Marking Recommendations for Animal-Drawn Carriages

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Introduction
As an equestrian sport and a commercial business enterprise, the popularity of horse-drawn carriage driving is growing. In urban areas, the increase in carriages on the roads has resulted in the rise of motor vehicle interactions. In addition to horses, other animals can be used to pull carts and carriages. This calls for improved safety awareness on the part of cart and carriage drivers when operating on public roads.

In 2008, the American Society of Agricultural and Biological Engineers (ASABE) proposed an engineering practice for lighting and marking of animal-drawn vehicles. The purpose of this engineering practice is to provide a unique and consistent marking pattern for use by carriage drivers. The recommendations are presented on the following page.

The Slow Moving Vehicle (SMV) Emblem
The SMV emblem is a unique identifying marker indicating a vehicle traveling slower than 25 mph. Studies show that two out of three highway crashes involving slow-moving vehicles are rear-end collisions. Of these rear-end collisions, nine out of ten occur during daylight hours. During the day, the bright, fluorescent orange triangle of the SMV emblem gains the attention of approaching motorists from more than 1,000 feet. This provides motorists ample time to slow down before it is too late. At night, the reflective border of the SMV emblem glows brilliantly in the path of approaching headlights. The distinctive, retroreflective red triangle surrounding the fluorescent orange center immediately identifies a slow-moving vehicle.
An outline of the ASABE recommendations is presented here.

<table>
<thead>
<tr>
<th>Item</th>
<th>2008 ASABE Recommendations</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Color</td>
</tr>
<tr>
<td>SMV Emblem (Rear)</td>
<td>1</td>
<td>RED</td>
</tr>
<tr>
<td>Headlights1 (Front)</td>
<td>At least 2</td>
<td>WHITE</td>
</tr>
<tr>
<td>Tail Lights1 (Rear)</td>
<td>At least 2</td>
<td>RED</td>
</tr>
<tr>
<td>Hazard Flashers1 (Front and Rear)</td>
<td>At least 2</td>
<td>AMBER</td>
</tr>
<tr>
<td>Retroreflective Material (Rear)</td>
<td>2 inch x 9 inch strips</td>
<td>Alternating RED retroreflective and ORANGE RED fluorescent material</td>
</tr>
<tr>
<td>Retroreflective Material (Front)</td>
<td>At least two 2 inch x 9 inch strips</td>
<td>YELLOW retroreflective material</td>
</tr>
<tr>
<td>Retroreflective Material (Side)</td>
<td>At least two 2 inch x 9 inch strips</td>
<td>YELLOW retroreflective material</td>
</tr>
</tbody>
</table>

1Animal-drawn vehicles with a lighting system should be equipped with a battery operated or generator powered system. Batteries may be typical storage, deep cycle or gel cell conforming to SAE J537.
Headlamps

Yellow retroreflective material (white retroreflective optional)

Amber warning lamps

Carriage Side

Headlamps

Yellow retroreflective material (white retroreflective optional)

Amber warning lamps

Red reflector tail lamps

Carriage Rear

Amber warning lamps

Red reflector tail lamps

SMV emblem

Alternating red retroreflective and red-orange fluorescent material (white retroreflective optional)

Carriage Front

Headlamps

Amber warning lamps

Yellow retroreflective material (white retroreflective optional)
Reference
ANSI/ASAE, EP576.1 July 2008, Lighting and Marking of Animal-Drawn Equipment, ASAE Standards,
American Society of Agricultural Engineers (ASAE), St. Joseph, MI 49085.

Resources
Retroreflective Material, American Society of Agricultural Engineers (ASAE), S279.11, April 2001.
Lighting and Marking of Agricultural Equipment on Highways, ASAE S279.13, DEC 2005.
Headlamps for Agricultural Equipment, SAE J975, JUN93.
Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width, SAE J585, MAR 2000.

For additional information, visit the following web site at http://www.agsafety.osu.edu or request a listing of
the available fact sheets from your local OSU Extension office.

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