

12CN horses immediately following turnout (06:00 to 09:00h). 12CD nighttime ingestion patterns were not different ($P > 0.05$) from 24P horses, although 12CD horses did not display the 24P pattern of ingestion decline at 03:00-06:00h. Movement was higher at 15:00-24:00h in 24P compared with 24C. Movement frequency did not differ between 24P and 12CD, although inactivity was higher ($P < 0.05$) in 12CD; inactivity increasing at the expense of ingestion. 12CN horses displayed the greatest difference in movement and inactivity patterns compared to 24P, with lowest movement at 18:00-03:00h. Confinement affects behavioral repertoire in horses, with increasing disruption as duration of confinement increases. Half-day confinement during daylight preserves a greater degree of unconfined repertoire compared with nighttime confinement. Movement and ingestion behaviors were the most disturbed under confinement. Disruption in these activities may be related to increased incidence of digestive disorders and stereotypies documented in confined horses.

Composting carcass tissue in controlled composting columns

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The equine industry is faced with discovering innovative ways to remove unwanted horses and dispose of the consequent equine mortalities. To determine the magnitude of the problem, the West Texas A&M University Department of Agriculture Sciences and the American Association of Equine Practitioners conducted a survey to quantify the number of horses in the United States being euthanized each year, to establish how much sodium pentobarbital is being used by veterinarians to euthanize equines, and to identify the preferred methods for carcass disposal. The thirty-two survey respondents disposed of forty-six percent of the horse carcasses through burial, composting and leaving the carcass out which may release the sodium pentobarbital into the environment and therefore is a concern. Composting was considered the preferred equine carcass disposal method by over ten percent of the survey participants. The second part of this research consisted of composting livers from animal carcasses spiked with sodium pentobarbital under controlled conditions in order to quantify the amount of sodium pentobarbital degradation. Previous research has indicated the potential for compounds derived from sodium pentobarbital to survive the composting process. In this study, columns were filled with a mixture of horse manure, wood shavings, and waste hay. Ground liver from either euthanized horses or beef cattle was placed directly in the center of the column. The bovine livers were spiked with sodium pentobarbital at 0, 10, 30, or 60 ppm and the

equine liver came from horses euthanized with sodium pentobarbital. Two continuous recording electronic temperature data loggers were loaded in the columns and pile, and ambient temperatures were obtained. The composting process was considered complete once temperatures dropped below the thermophilic reference temperature of 55°C for several days. Temperature degree-days, organized by treatment, were compared using a One-way Analysis of Covariance (ANCOVA) procedure in SPSS program. There was no significant difference observed between the numbers of degree-days above 55°C for each treatment. Sodium pentobarbital and derivatives were detected in all compost samples at the completion of the trial. All columns but two appeared to have less sodium pentobarbital at the end of the composting process than at the beginning. However, one column had no change in the concentration of pentobarbital in the compost from the beginning to the end. The data suggests that too hot or too cold of temperatures during the composting process may affect the microbial populations capable of degrading sodium pentobarbital and derivatives.

The over-conditioned horse: incidence and educational opportunities

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Equine obesity has become a major health concern in the horse industry, perhaps because many horse owners have difficulty recognizing changes in equine body condition score and weight. The United States Department of Agriculture National Animal Health Monitoring System (NAHMS) 1998 Equine Study estimated that 1.4% of U.S. horses were over-conditioned. The objectives of this study were to develop an equation for estimation of ideal body weight and to provide resources for horse owners to aid in identification of over-conditioned horses. 629 adult horses and ponies who met the following criteria: age ≥ 3 yr, height ≥ 112 cm, and non-pregnant, were measured and weighed at two, non-breed specific shows in September 2011 in MN. Trained personnel assessed body condition score (BCS) on a scale of 1 to 9, measured wither height at the third thoracic vertebra, body length from the point of buttock to the point of the shoulder, neck and girth circumference, and weight using a livestock scale. Horses were grouped into breed types based on knowledge of the breeds; groupings were confirmed using principal component analysis of morphometric measurements. Equines had BCS that ranged from 2 to 8, with a mean \pm SD of 5.6 ± 0.9 . 14% of horses were considered fleshy to fat with a BCS ≥ 7 , which is similar to previous research that identified 19, 19, and 21% of horses as fleshy to fat in New York, Virginia, and the United Kingdom, respectively. Either the NAHMS report drastically underestimated the number of over-conditioned horses, or the incidence of over-conditioned horses has increased 13-fold in only 14 years. These