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The Natural Behavior of Swine and Commercial Pork Production Methods

Our topics for this week are:

- **The natural behavior of swine**
- **Effects on swine from commercial indoor pork production on concrete**
- **Alternatives to indoor pork production on concrete**

The Natural Behaviors of Swine

Hogs were domesticated from wild boars about 11,000 years ago in southwestern Asia and China. They were raised for their meat, hides, bones (tools or weapons), and hair (bristles for brushes). Egyptians sowed seed in the ground that was loosened by the sharp points of hog hooves. The genome of domesticated hogs is very similar to wild hogs.

Swine in the wild live in groups, called "sounders" of 2 to 6 sows and their pigs. The sows will often pair up for foraging and sleeping. Once young males near puberty, they are driven away by older, more dominant boars. They finish their development in bachelor groups until they are ready to challenge the dominant boars. The dominant boars tend to remain solitary except at breeding seasons.

Hogs defend themselves by pushing and biting. The bullet shape of their body is a passive means of defense that affords considerable protection from predators and adversaries. Their body shape facilitates quick escapes in thick bush and difficulty in being caught, especially if their body is wet and muddy. They move in loose groups as a herd, but if alerted to threats to a herd member by squealing, other hogs will come to the member's defense.

Body size strongly affects social status in hogs and pigs. The superior social rank of heavier pigs is established in early play contests. Success in pushing other pigs away from food or other possessions reinforces social rank. Group interaction is important to hogs. Hogs cannot reach most of their body with their mouth or their hind legs. In groups, they groom each other with their mouths. Deprived of this, they spend much of their time trying to scratch themselves on objects. Grunting vocalizations are auditory social contacts that are nearly constant if moving or nursing piglets.

Hogs are adapted to temperate climates. They are most comfortable at temperatures between 55 and 85oF. During hot weather, their activities in the wild are primarily nocturnal. In daytime, they wallow in mud and rest. When cold weather occurs, their activities become more crepuscular and diurnal. When resting in cold weather, they huddle together to conserve body heat.

The natural behavior of swine is to forage for food (grubs, worms, roots, nuts) and investigate their surroundings by rooting with their snout for about 7 hours a day. Hogs have a

disk-shaped snout cartilage that aids their ability to root. They root to find food and create wallowing areas to cool themselves. They are highly intelligent and require much mental stimulation to prevent self-mutilation or aggression toward other hogs. Deprived of these mental challenges, food possession becomes more important and aggressiveness to other hogs increases. They are capable of living in a wide variety of habitats, but they prefer woodland marshes that provide escape from sunburn and heat, chances to wallow in mud to control flies and other external parasites, and their favorite foods, including acorns and earthworms. They have an extraordinary sense of smell, excellent hearing, and poor vision. Boars "champ" their teeth and produce some frothy saliva containing pheromones. They mark their territory with saliva and urine.

Indoor Pork Production on Concrete

The U.S. has become the largest exporter of pork products in the world. Most hogs in the U.S. are now raised in total indoor confinement on concrete. This prevents their primary natural behaviors, rooting and wallowing. The natural 7 hours of rooting are exchanged for 2 hours of eating from a pan or trough in a pen. Tails are docked to prevent tail biting that results from the lack of the mental stimulus resulting from rooting. The inability for baby pigs to ingest dirt from the sow's teats while nursing and root, which they normally begin to do in the first week of being born, will lead to iron deficiency anemia if iron is not administered to baby pigs as a preventive treatment. Providing straw bedding for hogs to root and chew reduces aggression, skin damage, and joint injuries. When they are prevented from rooting, they lie on their sternums more than their sides. This can be stressful since they get greater rest laying on their sides.

Crowding and confined access to food generates most aggression in hogs. Hogs in large commercial operations have been given beta-adrenergic drugs to reduce fat in their muscle. Common side effects of beta-adrenergic drugs are nervousness and aggression. Breed affects social rank in mixed groups. Large Whites are more aggressive than Hampshires which are more aggressive than Durocs. Large Whites are the most common breed used in pork production in the United States.

Containment that provides greater environmental diversity for mental stimulation, socialization with other hogs, and relief from standing and laying on concrete better meets the criteria for desirable containment of all species.

Alternatives to Raising Hogs Indoor on Concrete

Loose housing with straw bedding for containment is associated with less lameness, abrasions, and stereotypic behaviors in swine than total indoor confinement on on concrete.
Lameness is common in stall confined sows on concrete due to lack of movement to nourish joints, inability to maintain muscular tone, and an inability of handlers to monitor their ability to move. In Europe, sows are more commonly loose housed, i.e. group housed in herds of 30 to 40 hogs per pen, and then fed individually in feeding stalls to prevent fighting over food. Straw bedding is provided for hogs to root and chew. Branches and logs may also be included in pens.

Lameness, abrasions, and stereotypic behaviors are less common than in intensive indoor confinement operations. Intensive confinement in gestation stalls have been promoted to decrease interaggression among sows by physical separation, but the use of gestation stalls has also prevented selective breeding against aggressive sows.

The best temperature range for swine is 55 to 85°F. Hogs do not sweat or pant efficiently to dissipate overheating. They must cool themselves by wallowing in mud or with misting fans. However, they also need to stay dry when sleeping, be able to stay out of drafts, and get away from the mud when eating and other times when desired. Hogs raised outdoors must have sufficient pasture to have access to mud and to get away from it, or if in a smaller area, they need slatted wood platforms to escape the mud when needed. Hogs on dirt, but without a pond, will root to create a wallow if their snouts are not ringed. Hog-made wallows can be a source of infection and difficult to manage. Man-made wallows are shallow pools in which hogs can wade, wallow, and cool themselves. The pools are constructed of metal, concrete, or pressure treated pine. Dry lots for hogs should be sloping to prevent them from becoming exclusively mud lots during rainy seasons. Swine must always have access to shade.

A range hog house is a 3-sided walk-in shed that is on runners so that it can be moved like a sled. Usually there is no floor. Straw bedding is usually provided although, in some areas, peanut hulls or wood shavings may be preferred. To provide better wind shelter, the hog house should be 8 ft wide and 16 ft long with a roof that slopes from the entrance toward the back. At the highest point, the entrance, the roof should be 5 ft above the runners. The entrance should face the east or south, opposite the prevailing winds. A-frame houses may be used, but these allow poor access by handlers. Hog houses should be firmly fixed to the ground when in use or reinforced by a low strand of electric wire to prevent hogs from rooting under an edge and lifting the structure.

If sows are in close confinement, farrowing crates are intended to reduce the risk of piglets being crushed or smothered by the sow. Sows are usually put in farrowing crates 1 week prior to farrowing until 3 to 4 weeks after farrowing. The basic crate is 5 ft wide and 7 ft long. The middle space for the sow is 2 ft wide and 7 ft long with an 8 to 10 inch space between the bottom of the inner side panels and the floor to permit piglet escape from being crushed by the sow. Other operations use pens at least 6 X 8 ft with guardrails around the edge 6 inches from the wall and 8 inches from the floor to provide a shelter for piglets to avoid being crushed. A creep area is also located in one corner to provide additional heat to the piglets. Huts in pastures are an alternative to farrowing crates, but some handlers argue that domestic sows are larger and less nimble than feral sows and crushing is still a problem.

If you have comments or you're interested in particular animal handling subjects, contact us at CBC@BetterAnimalHandling.com

Now let’s recap the key points to remember from today’s episode:

1. **In the wild, hogs spend most of their time foraging for food and keeping cool in hot weather and warm in cold weather.**
2. **Indoor concrete confined hogs do not have the mental enrichments of searching for food or seeking a preferred environmental temperature.**
3. **Being unable to root for food, chew on straw, and rest in mud for coolness or huddle for warmth, is frustrating for hogs, often leading to tail biting, aggression, bar biting, and lameness.**

More information on animal handling can be found in my recent books, ***Animal Handling and Physical Restraint***, ***Concise Textbook of Small Animal Handling, and Concise Textbook of Large Animal Handling*** all published by CRC Press and available on Amazon and from many other fine book supply sources.

Additional information is provided at: www.betteranimalhandling.com . This website has more than 200 past podcasts with notes on handling of dogs, cats, other small mammals, birds, reptiles, horses, cattle, small ruminants, swine, and poultry.

Don't forget, serious injury or death can result from handling and restraining some animals. Safe and effective handling and restraint requires experience and continual practice. Acquisition of the needed skills should be under the supervision of an experienced animal handler.