GOAT

Bedding Packs in Goat Barns

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Bedding pack, a mixture of straw or other bedding material along with manure, urine and wasted feed, is important to manage in goat barns. Successfully managing the pack results in clean, healthy and comfortable goats and promotes the production of high quality milk. Bedding pack can be used interchangeably with the terms straw pack and manure pack. A critical point in the success of managing any manure pack barn is keeping it at the proper moisture level - keeping it dry. This article explores packs from an animal husbandry and milk quality viewpoint, and discusses manure management considerations.

ANIMAL HUSBANDRY AND MILK QUALITY

Goats can be very comfortable on a dry bedded pack. Two aspects to consider are the density of goats in the area and the ventilation of the barn. Keeping the number of goats at the proper density with good ventilation will be more comfortable for the goats, and is easier for you to keep the bedding pack dry. The recommended space for goats is 1.1 to 1.7 square metres (sq. m) per head (12 to 18 square feet per head) for mature does. Figure 1 shows the recommended stocking density for each class of animal. In terms of ventilation, air flow through the pens should be sufficient to minimize humidity and prevent the accumulation of odours and gases such as ammonia.

Figure 1: Minimum floor space for goats. Source: Best Management Practices for Commercial Goat Production, 2014.

	Minimum Building/Area Floor Space	
Class of Animal	(sq. m/head)	(sq. ft./head)
Does	1.1 -1.7	12 – 18
Bucks	2.8 – 3.7	30 – 40
Young Kids >30 kg (66 lb.)	0.7 – 0.9	8 – 10
Weaned kids <30 kg (66lb.)	0.3 – 0.5	3 – 5.5

Milk quality goes hand-in-hand with proper sanitation practices in the milk parlour, robust animal health protocols AND good husbandry, including a dry bedding pack. Bacteria thrive in moist environments, so keeping the goats and the pack dry are critical. Somatic cell counts (SCC) can help you identify issues in the herd; an elevated SCC may indicate an on-going udder infection. There may be some issues with your housing if the majority of your animals have a SCC above 1.5 million cells per millilitre. Assessing your bedding and making management changes can help improve your milk quality and udder health.

Barn management can significantly influence the condition of the pack. Leaky water bowls can contribute to wet packs and need prompt attention. The use of complete feeds can result in “looser” manure from goats, which would require more bedding; providing dry hay or straw in conjunction with the complete feeds for rumination can help to stiffen up the manure. Kids fed milk or milk replacer will produce more urine and may require more frequent bedding changes. Build-up of the bedding pack may require you to clean out the pack more frequently.

Your sense of smell and touch can tell you a great deal about how comfortable the goats are in their environment. If you smell ammonia, you may need to improve ventilation or add bedding. More bedding is likely required if you feel moisture after “taking a knee” down in the pack for a few seconds and it comes up wet or damp. The addition of bedding varies from farm to farm and depends on barn design, stocking density of the goats, and the feeding and watering system used.

MANURE MANAGEMENT

A typical pack will be approximately 30 centimetres deep, but in some barns it can be deeper. Because the pack can accumulate to these depths, it is also classified as a manure storage area. The bedded pack is a viable option for manure storage for farms required to have a Nutrient Management Strategy (NMS). A producer can use the days of storage from the pack area (i.e. days between clean out) along with other storage options to demonstrate that there is adequate manure storage capacity on the farm. Typically, farms with a NMS are required to have a minimum of 240 days of manure storage capacity. Additional guidance on nutrient management requirements can be found on the Ministry of Agriculture, Food and Rural Affairs’ (OMAFRA) website.

Once the bedding pack reaches its maximum depth, it will need to be removed from the pen. Maximum depth of the manure pack is determined by the strength of the surrounding structure wall, ammonia and odour buildup, and pen management (i.e. challenges with goat access to feeders and the ability to open pen gates with increasing pack depths). For some goat farms, it may take a number of months for a pack to reach its maximum depth.

Once the pack is removed from the pen, a suitable location is needed for the manure. During the growing season, an option may be to directly spread it on nearby fields if conditions are dry and the fields are available for spreading.

During the non-growing season, such as the winter or with wet field conditions, placing the manure in storage is a better option. Spreading is not recommended at these times because of increased risk of runoff and nutrient loss. If a permanent manure storage area is not available near the barn, you could consider a temporary field storage (i.e. stockpiling) of the manure. This will allow you to clean out the barn but defer spreading until field conditions have improved. Stockpiling has the added benefit of allowing the pack material to break down, resulting in a more uniform application on the field (fewer clumps).

If using temporary field storage, select a level spot for the stockpile (less than three per cent slope) and adhere to the following setback distances for stockpiled manure:

- At least 125 metres (m) (410 feet) away from a single neighbour’s house, and double that distance if you want to stockpile near a residential area (four or more houses)
- At least 45 m (148 feet) away from a drilled well, 90 m (295 feet) from a dug well and 100 m (328 feet) from a municipal well
- At least 50 m (165 feet) from surface water, tiles inlets and catch basins
- At lease 0.9 m (three feet) from bedrock

The bedding pack approach offers several advantages for producers, including all-in-one manure storage and livestock housing. Keeping the pack dry is critical to goat comfort, herd health and milk quality. ▮

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