

# CALVING EASE

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## Good Air = Good Health

Rule Number One: If you are assessing ammonia gas concentrations you have to be in the right place.

Rule Number Two: If you are going to depend on your sense of smell to pick up ammonia gas in a barn go abruptly from a “clean” air environment into the barn. Do your “sense-test” immediately while you have a “fresh” nose.

Rule Number Three: Keep an open mind about when and where you will find noxious gases. Patterns of air movement can be hard to predict. Surface appearances can be deceiving.

There are times when we do not notice that our management of air quality is good enough. For this newsletter air quality I am going to focus on the low concentration of ammonia gas.

### Most common errors

Put yourself in the center feed alley of a transition heifer barn. There are pens on both sides with bedded packs about a foot deep. The pens have been bedded today with wood shavings. The curtains on both sides of the barn are down. Overhead doors on both ends are open. Should be good air quality, right?

As we stood in the feed alley there was no noticeable ammonia odor. I climbed into one pen and as I stood there I could not pick up an ammonia odor. Then while on my hands and knees so I could put my face down at the level a calf's nose would be while lying down I took a deep breath. Whew! Ammonia to knock your socks off. No wonder the owner told me that they were treating over half of the heifers in this barn for pneumonia.

Using a Matheson toxic gas detector I measured the ammonia levels in this pen and in the pen across the alley. Twelve parts per million (ppm) on the first side and fourteen ppm on the second side. I recommend keeping this value under 5 ppm for good respiratory health.

What errors was I making initially? First, the owner and I were standing in the wrong place – out in the alley. None of the calves live there. Second, I was standing up on the bedded pack. None of calves breathe in at sixty inches above the pack.

Rule Number One: If you are assessing by “smell” ammonia gas concentrations that affect animals you have to be in the right place.

On another farm we went into the calf barn. It was arranged with one row of calves along each long wall and two more rows in the middle of the barn. There were work alleys between the outside rows and the middle of the barn. We were talking about various calf health issues. After about 50 to 60 minutes we completed our conversation.

He asked what I thought about air quality in the barn. The owner pointed out the chimney vents at the roof peak and two positive-ventilation tubes. Now that I focused on the air quality I did not pick much of an ammonia smell. Nevertheless, I went out to my truck and brought in the Matheson toxic gas detector. We measured 10 ppm ammonia in a nice clean calf pen. Then I checked a pen that was fairly wet and dirty. I got the same reading – 10 ppm.

Well, that was puzzling. Then I looked up at the positive-ventilation tubes. The tubes were not connected directly to the outside. Fans in the walls blew air into them with about a one-foot gap between the fan and the opening of the tubes. Is possible that the tubes were mostly circulating air from inside the barn rather than pumping in air from outside? I checked the ammonia level in one of the work alleys at three feet from the floor. Same reading as the two pens – 10 ppm. The positive-ventilation tubes were doing a good job recirculating inside air. Additional investigation revealed that the chimney vents were not working due to maintenance issues.

What errors did I make? First, I forgot about the gradual loss of sensitivity of my smelling senses to strong odors. By the time I had been in the barn for an hour I had become accustomed to the barn odors and they became “normal.” Second, I let my preconceived ideas tell me where I would find ammonia odors.

Rule Number Two: If you are going to depend on your sense of smell to pick up ammonia gas in a barn go abruptly from a “clean” air environment into the barn. Do your “sense-test” immediately while you have a “fresh” nose.

Rule Number Three: Keep an open mind about when and where you will find noxious gases. Patterns of air movement can be hard to predict. Surface appearances can be deceiving.

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