

Clean Fresh Air

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As the dairy industry is shifting away from outdoor individual hutches to various indoor systems we need to ensure we are always providing fresh unused air to our preweaned calves.

Ventilation can be a very complicated adventure for many calf barns. There are many options of inlets, exhaust fans, tubes, and recirculating fans. Ventilation simply is the provision of fresh air. Can we simplify ventilation down to a core group of key guidelines? For the majority of calf facilities I feel we can. These seven guidelines I have found very useful as I evaluate calf facilities.

Guideline 1

Calves need fresh unused air. The air source must not come from another group of cattle. As we check the philosophy of the system, simply determine where is the air coming from.

Guideline 2

Indoor calves under 4 month old must have a mechanical system to ensure air is being exchanged. Young calves are too small to cause enough hot air to rise to encourage enough new fresh air to enter.

Guideline 3

A pen that is overstocked greatly limits the ventilation system. Simply put, if we overstock a calf barn/pen we should assume we will not be able to ventilate it properly. So what is acceptable stocking density? Thirty two (32) square foot of comfortable bedded area is the accepted absolute minimum resting space per preweaned calf. Many advisors (myself included) prefer 40 square foot of bedded area.

Guideline 4

Air exchange rates change with the seasons. The accepted minimum air exchange rates are:

- Winter – 4 air changes per hour
- Spring - 20 to 40 air changes per hour
- Summer – 64 air changes per hour
- Autumn – 20 to 40 air changes per hour

Does your calf facility have a guaranteed plan to achieve these air exchange rates while always bringing in fresh unused air every day of the year?

Guideline 5

When air is cold or damp, the air speed at the calf level should not exceed 60 foot per minutes. Air speeds over 60 foot per minute are considered drafts. Drafts with cold or damp air can be stressful for preweaned calves. Fast moving dry summer air is not a stress for preweaned calves.

Guideline 6

Lots of bedding, especially in the winter, is critical to keep the calves clean, dry, and comfortable.

Guideline 7

If your plan is for natural ventilation in the summer, do you have a backup plan for those windless muggy days? It is common to have numerous windless muggy days in Ontario each summer. What mechanical system do we have setup to ensure we have those 64 air changes per hour? The positioning of the calf barn is critical to prevent other buildings, silos, trees, etc. from creating a wind shadow where we have decreased air movement. To ensure other tall structures do not impede natural air flow, we need to be 10 feet away for every 1 foot of height. As an example, the barn needs to be 150 feet away from a line of 15 foot tall trees if we want to have full value of the natural breeze.

If we critically assess our calf facilities with these seven rules, we will safely get an appropriate amount of fresh clean air to our preweaned calves. Many advisors have the tools (smoke bombs, anemometers, etc.) to help assess your calf facility. More fresh air is a key component to decrease respiratory disease in our preweaned calves.

Happy, healthy calf raising.