

Does milking hose diameter matter in good cow milking?

Jason LeGassick for *Progressive Dairyman*

Have you ever asked yourself or been asked the age-old question: Does the milking hose diameter really affect the way cows milk out, or does it improve parlor efficiency? Before we determine the answer to this question, we must first ask ourselves: What are we trying to get out of our milking parlor? What does it mean to have larger-diameter hoses?

What is the purpose of a larger-diameter milk hose?

With any larger-diameter milking equipment, the purpose is to remove any restrictions found in the milk path. Removing restrictions includes eliminating small-diameter milking equipment as well as eliminating any place where milk is lifted in the milk path.

Think of a restriction as a storm drain; when there is little or no rain, the drain is open and plenty of open space is available. Now think of that same storm drain when it is raining hard; the drain gets filled up and water begins to pool, completely eliminating any free space that was available.

If we now relate this to the milking process, a dairy would want as much space for air to get through to the claw as possible. Today, the most common size of milk hose is 5/8-inch. This is the same diameter used in the '70s when a really good herd of cows had a tank average of 40 pounds of milk. Today, our cows are averaging much more than that, with some dairies averaging 115 pounds a day – or perhaps even more. In the last 40 years, we have made many changes to our cows and dairies; we now ask our cows to give more milk

faster and with fewer issues. How can we as dairy producers expect the smaller-diameter milking hoses and equipment to keep up with today's dairies?

What is the effect of larger-diameter milk hose?

When we provide a dairy with larger-diameter milk hoses and equipment, there are several very beneficial effects that happen. First, dairies are able to maintain a much

steadier claw vacuum. This is due to the fact that there is always room for the vacuum to get to the claw. In larger-diameter systems, it is common to see vacuum fluctuation in the claw of under a half-inch of vacuum, with cows that have peak flow rates greater than 17.5 pounds per minute.

Compare that to some small-diameter systems that have more than 5 inches of vacuum fluctuation. When there is fluctuation in the claw, the dairy equipment dealer will take

an average claw vacuum and then increase your system vacuum up to compensate for the fluctuation. What this does is expose the teat ends of the cow to higher vacuum levels than are necessary, which is especially harmful in low flow, generally at the start and end of milking.

Dealers need to adjust the vacuum to reach the optimal average claw vacuum in order to have the liner function properly. When there is a steady claw vacuum, system vacuum



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does not need to be adjusted to compensate for the fluctuation, therefore not exposing cows to any higher vacuum than is necessary.

Stabilizing the claw vacuum helps the liner to function properly. It also leads to faster milkouts, healthier teats and increased parlor throughput, as well as generally allowing the cow to maximize her ability to produce high-quality and high-volume milk. There are studies that have seen and documented several herds that have had increased milk production, lower somatic cell count and better teat health, all from just going to a larger-diameter milk hose and claw.

Does your dairy need a larger diameter?

A very simple but effective way to tell if you are restricting your cows' milk flow is whether you see hoses bouncing. When hoses bounce, it is a direct indication that a slug of milk is forming inside the milk path. If you would go back to my example of the storm drain with water backing up – the milking system is getting flooded. When the system is flooded, it causes slugs of milk to be formed, pushing the milk through the hoses in big slugs, making your milk hoses bounce. This is also the root cause of unstable claw vacuum.

Secondly, if you are seeing more than an inch-and-a-half claw fluctuation at peak flow, your dairy would benefit from a larger-diameter milking system. Stabilizing the claw vacuum will increase your parlor efficiency and herd health. There have been studies performed that state if a herd is averaging more than 60 pounds of milk per day, then it is time to move to a larger diameter.

What to consider when going to a larger-diameter milk hose?

There are a few negative people out there against the larger-diameter milk hoses. If you properly manage your milking parlor, there are no issues going to larger-diameter hoses, only incredible benefits. Dairies will want to make sure they have proper unit alignment devices or that the meters and sensors they are using are in the correct location. If your dairy is averaging more than 60 pounds of milk per day, then a larger-diameter milking hose will improve the milking performance of your dairy herd. Always think: Do you want to design your milking system for your average cow's production or your highest-producing cows? ↗



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