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Poultry Housing Tips

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Is Your Inlet Machine too Slow?

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For growers with negative pressure houses, inlet machines can make it relatively easy to provide ideal house conditions for their birds. Throughout the entire day, side-wall inlets are continuously adjusted by the machine as exhaust fans turn on and off so that the inlets are open just the right amount to maximize both fan efficiency and air mixing. The grower doesn't have to worry that if outside conditions suddenly change when he isn't there that his inlets are open too much or closed too tightly.

Despite the potential benefits of an inlet machine, some growers have not been happy with their operation. A common problem with inlet machines is their speed. Many grower have found that it may take as long as four minutes or more for the machine to open the inlets fully. If the exhaust fans are on less than a couple of minutes, the inlets never truly open. Because the inlets do not open, the fans do not bring in as much fresh air as they should, resulting in stuffy houses and increased electricity usage. In addition, the cold air which does enter the house does not mix like it should because it is entering primarily through cracks. This causes drafts and increase fuel usage.

These problems can of course be avoided if the inlets open quickly. Ideally, an inlet machine should be able to take the inlets from totally closed to totally open in a minute or less. In order for this to occur, the cable the inlets are connected to needs to move at a rate of approximately seven to ten inches a minute. Obtaining this speed depends on both the speed of the drive unit on the inlet machine, as well as how the inlet machine is connected to the inlets. In most cases the problem of slow opening inlets does not lie with the machine, but rather with its installation.

When installing an inlet machine, a hand winch is typically included so that the inlets can be manually adjusted if something happens to the inlet machine or if the grower wants to make adjustments to the inlets. It is the installation of this hand winch that determines to a large extent how fast the inlets will open.

Without a hand winch (Figure #1) the inlets will open at the same speed as the inlet machine moves. For most machines this is about five inches per minute. If the hand winch is installed as in Figure #2, the speed will be cut roughly in half due to pulley action (2 1/2" per minute). For every inch the inlet machine moves, the cable which the inlets are connected to will only move

about a half an inch. This reduction in speed means it will take more than four minutes for the inlets to open totally.

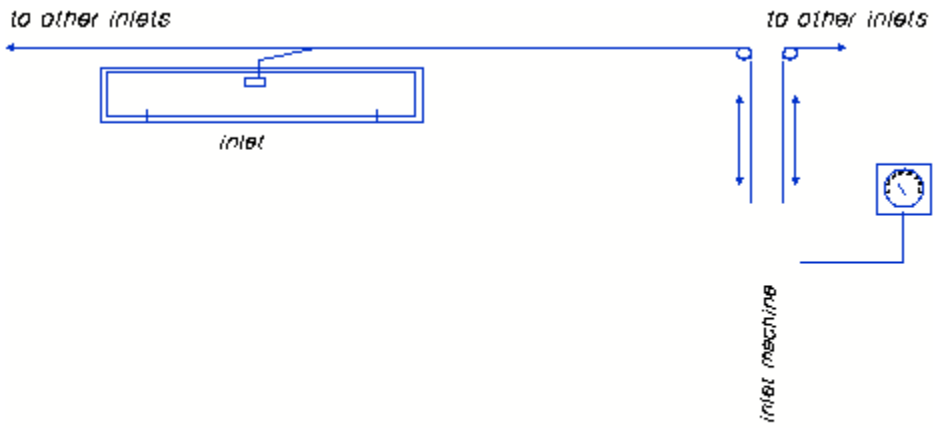

Figure 1. Inlet Machine Without Hand Winch.

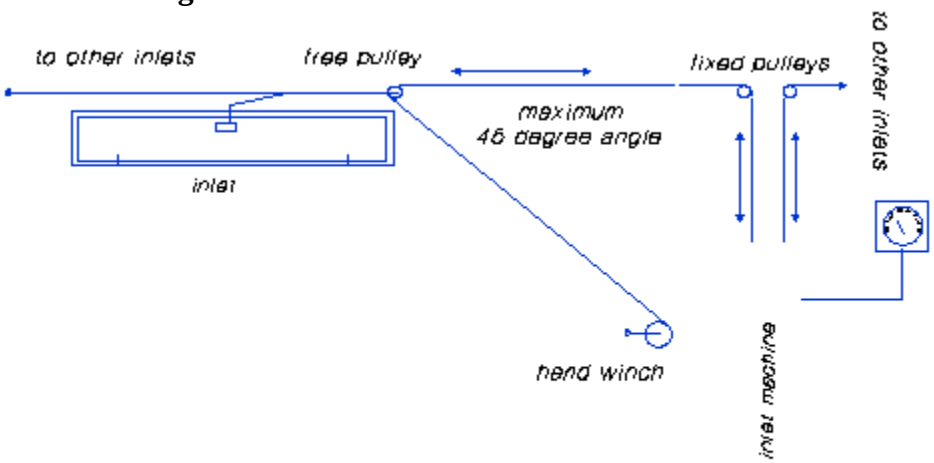

Figure 2. Hand Winch Installation to Reduce Inlet Speed.

However, if the hand winch is installed as shown in Figure #3, the speed will be approximately doubled (10 inches per minute). This is because for every inch the cable connected to the machine moves, the inlet cable moves two inches. By changing the way the hand winch is installed in Figure #2 to the manner described in Figure #3, inlet speed will be increased four fold, from 2 1/2" per minute to 10" per minute.

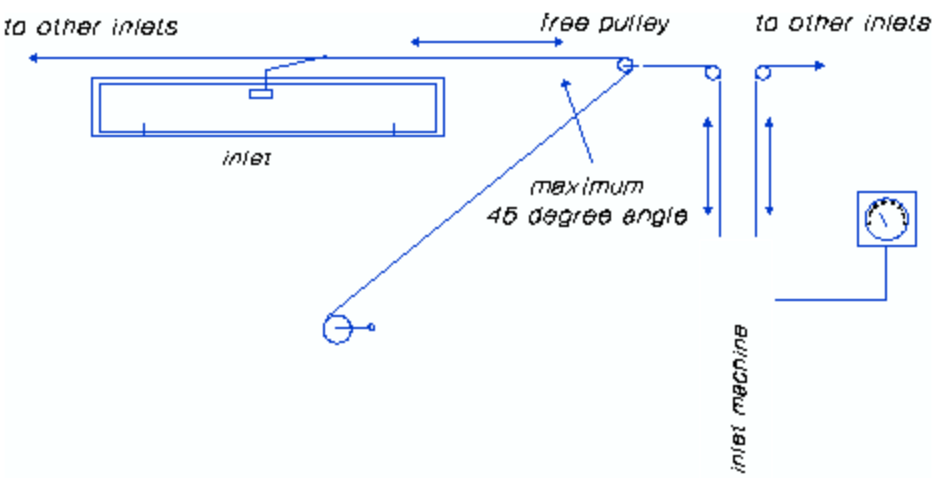

Figure 3. Hand Winch Installation to Increase Inlet Speed.

In some instances, an inlet machine may have a very fast drive unit (moving more than six inches per minute). These machines do not require speeding up. If installed like Figure #3 the machine will move too quickly. On the surface this may not seem to be a problem, but the inlets will open too much before the pressure gauge has a chance to react, resulting in a lower than desired static pressure. Figure #4 illustrates how to install a hand winch where the speed of the inlet machine is adequate. With this set-up, for every inch the inlet machine moves, the cable which the inlets are connected to will also move an inch.

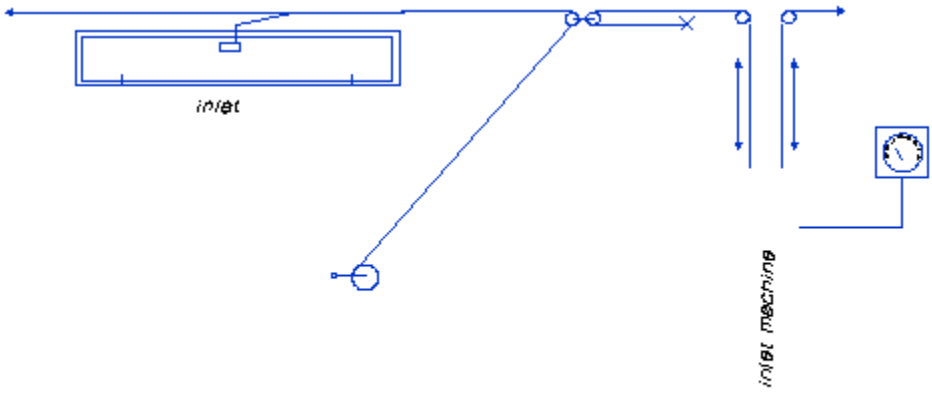

Figure 4. Hand Winch Installation to Keep Inlet Speed the Same As Inlet Machine Speed.

Figure #5 illustrates the cable set-up for longer houses (greater than 400') where a slow inlet machine is installed in the middle of the house. The hand winches would be installed in the same

fashion on the opposite side of the house as the inlet machine.

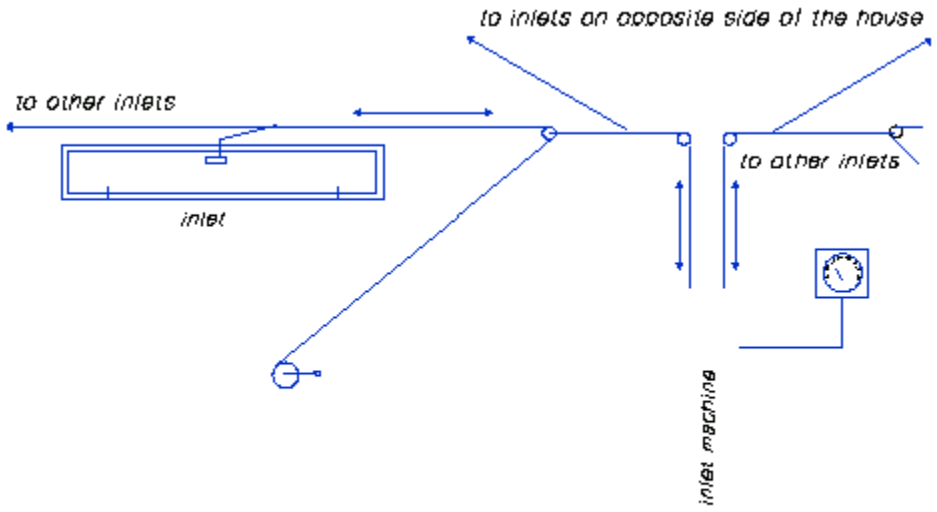

Figure 5. Hand Winch Installation to Increase Inlet Speed in Long Houses.

By making sure that side-wall inlets open quickly producers should find that it is relatively easy to maintain ideal environmental conditions throughout the day regardless of outside temperatures. But, inlet machines will only produce the proper inlet speed if installed properly.

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