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Getting Broiler Houses Ready for the Summer

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As growers sell flocks in the spring, it is time to carry out the maintenance tasks in tunnel-ventilated houses to prepare for the summer. Tunnel-ventilation systems require all components working together to deliver cooling in the hot summer days and nights. Wind speed, static pressure, fan rotating speed, etc., can be assessed to make sure that the house and the equipment are all in top condition.

1) **Tunnel fan cleaning and maintenance.** Clean fan shutters and blades between flocks. Dirty shutters make it harder for the fans to move air and can reduce air-moving capacity by 20 percent or more. Tighten or replace belts on belt-driven fans. The fans with loose belts run at 10 to 20 percent lower rpm values than those with tight belts. Check the riding position of the belts for signs of

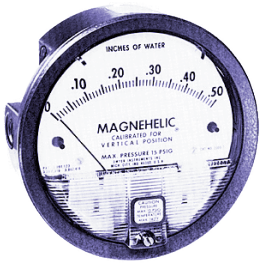
Frequent fan cleaning will reduce air flow resistance.

wear. A worn belt that rides slightly lower in a pulley is similar to using a pulley that is ½ inch smaller in diameter. A smaller-diameter fan pulley results in low rpm of fan blades. How can you tell a worn fan belt?

Cleaning evaporative cooling pads keeps a tunnel house in good working order.

The top of the belt should ride slightly above the top of the fan pulley. A worn fan belt will drop down into the pulley so that the top of the belt can't be seen in the pulley.

2) **Tightening houses.** Patch holes in dropped ceilings. The temperature of the air in the attic of a dropped ceiling house can be 10 to 20˚F warmer than outside in the summer. Loose houses reduce your ability to keep the birds cool. Conduct a static pressure test by closing the tunnel curtains (or tunnel doors) and air vents. Turn on one tunnel fan and measure the resulting static pressure.



A portable pressure gauge can test static pressure difference between inside and outside of a house.

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The ideal static pressure is 0.20" water column; this indicates that overall the house has no leakage. The minimum pressure should be 0.13" water column for relatively older houses. If static pressure is under 0.10" water column, hot air will be pulled through the cracks and not completely through the pad inlet. The leakage not only reduces overall bird cooling but can lead to large temperature differences between the pad and fan ends of a house.

3) **Evaporative cooling pad cleaning.** Pads should be free of cobwebs and mineral buildup. Dirty pads can increase the static pressure that the tunnel fans work against, lowering their air-moving capabilities. To check if the pads are properly cleaned, measure the air speed in the center of the pad system with all tunnel fans operating. For a 6" pad, the air speed should be between 350 and 400 ft/min, a 2" pad between 300 and 350 ft/min, and for a 4" pad between 225 and 275 ft/min. If the air speed is higher than values listed, you either have more cleaning to do or you may not have enough pad on the house to match up your full tunnel ventilation.

4) **Dump water from the pad system reservoirs in all houses after turning off the water supply.** Sump water needs to be changed every 2 to 3 weeks to minimize algae growth. Turn the water back on to all the pad system reservoirs. With the reservoirs full, turn the circulation pumps on. Check to see if the water is spraying up the proper height at the end of the distribution system. To do this, take the top off of your distribution system and measure the height the water is spraying up from the holes in the top of your distribution pipe. How high the water should spray up depends on the hole spacing (for the most part), which varies between 2" to 4" from various manufacturers. With a hole size of 1/8" diameter, for example, holes spaced close together reduce the height of the water column from 16" to 8". If the spray height is not enough, make sure the filter is clean and valves are wide open.

5) **Clean water filter weekly to reduce clogging.** Like dirty pads add resistance to the fans, a clogged water filter adds pressure head to the circulation pump, thereby reducing the flowrate to the distribution lines. Check the mesh size of your filter. The larger the mesh size, the finer the mesh. You may want to decrease your mesh size to a 20 or a 12 in order to reduce pressure head.

The water filter of the distribution system.

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