

Summer fan maintenance can save money

With the arrival of hot weather, livestock ventilation fans are working harder than ever. But how efficiently are they doing their job?

A properly maintained fan can save money on the electric bill, and put dollars in the pocket, says University of Delaware extension agricultural engineer Dr. Jim Scarborough. Because these fans operate in a very dusty atmosphere, that dust coats their motors, blades and shutters, making them work harder than necessary. And this costs money.

To illustrate his point, the specialist cites a recent field study at the University of Delaware Agricultural Experiment Station by power and machinery specialist Dr. Norman E. Collins, which shows that inadequate maintenance is the leading cause of reduced fan performance.

Before cleaning, one fan in Collins' study discharged 6256 CFM (cubic feet per minute) of air using 912 watts; after cleaning, it

discharged 7708 CFM, using 864 watts. When cleaned the fan had to operate 19 percent less time and used less power to move the same amount of air than it did when dirty. This translates into savings of \$59 per year on a single fan. Multiply that figure by all the fans in a building and the savings mount.

Scarborough recommends that producers service fans routinely during periods of heavy use. To avoid adverse effects on poultry or livestock during hot weather, he suggests cleaning and servicing fans between flocks or on a cool day, using the following procedures:

First, shut off power at the electric breaker box to the fan to be cleaned. If the breaker is hard to find, this would be a good time to mark each breaker or fuse circuit.

Then check wires in the breaker box for possible rodent damage and clean out any material that may have accumulated there. If the box is especially dirty or filled

with trash, cut the power and clean it thoroughly to reduce a potential fire hazard.

Next, tackle the fan. Begin by removing safety shields or screens from its housing. Then use a stiff nylon brush and a vacuum cleaner to remove dust from all fan components. He suggests using a shop vacuum instead of a household vacuum to avoid complaints. To remove a heavy build-up of dirt, the specialist suggests using a plastic windshield scraper. Take care not to nick or gouge the blades when scraping them. Such damage can cause a dynamic imbalance in the blades and increase fan noise and vibration during operation.

For a thorough cleaning, use a high pressure sprayer to wash the fan unit — provided the motor is totally enclosed in the housing. Otherwise, take the unit apart and clean the motor separately.

Once the fan is clean, lubricate it

according to the manufacturer's guidelines. Don't use too much oil, because any excess will attract dust and may get into the motor windings. Do not oil shutter hinges, as they'll become sticky when dust accumulates. Instead, use graphite lubricant or a few drops of antifreeze.

If the fan is belt-driven, proper belt maintenance and adjustment is very important, Scarborough says. Many belt-driven fans use the motor weight as a self-tensioning device. Check the hinges on the motor mount or counter balance beam to make sure they operate freely. Apply a small amount of graphite lubricant if the hinges are stiff.

On fixed-belt drive units, check the belt for proper tension by depressing it with your finger. It should be possible to depress it the same distance as it is thick. Replace a badly worn belt, but remember to readjust it in a couple

of weeks, as it will stretch after installation.

Having cleaned and serviced the fan, replace any screens or guards which were removed and put the unit back into operation. Mark the date on the fan housing with a felt-tipped pen, as a reminder of when it was serviced.

Scarborough says producers should check fans monthly during periods of heavy use and clean them as needed. A regular maintenance program will extend the life of the fans and save money.

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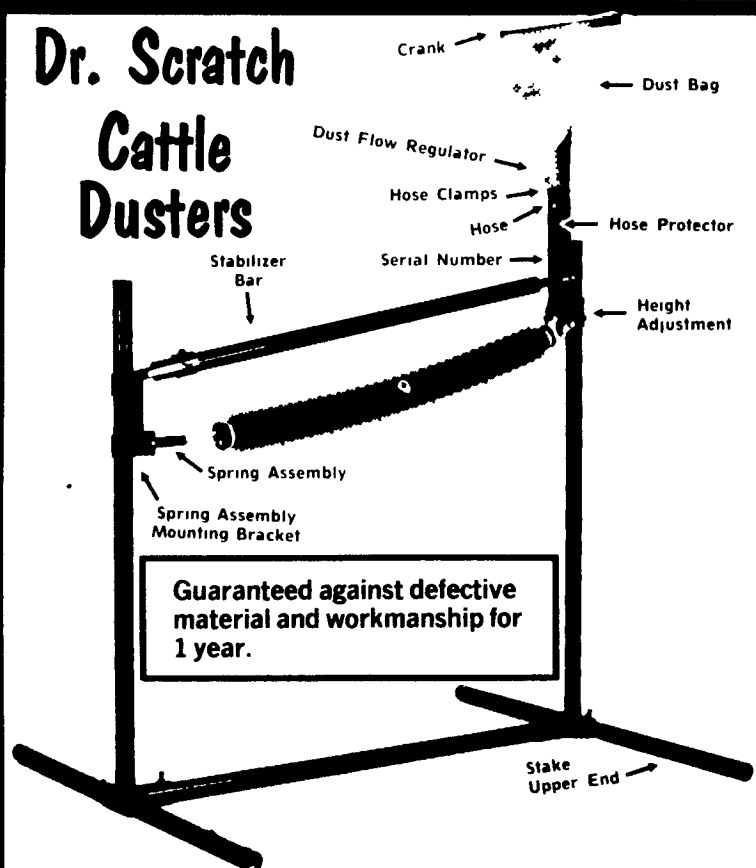


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