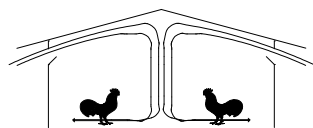




The University of Georgia Cooperative Extension Service

College of Agricultural and Environmental Science/Athens, Georgia 30602-4356



Poultry Housing Tips

High Capacity Tunnel Fans Decrease Producer Profits!

Volume 19 Number 12

November, 2007

Most fan manufacturers sell standard and high capacity versions of the many of their tunnel fan models. High capacity versions of tunnel fans typically move approximately 10% more air than the standard version thus allowing 10% fewer fans to be installed to achieve the desired tunnel wind speed. Though on the surface this appears to be a winning proposition, the problem is that high capacity fans use disproportionately more power than the standard versions. The end result is though you install fewer high capacity fans, you end up using far more electricity.

Example:

Choretime 52" galvanized fan with a butterfly shutter (standard vs high capacity)

The standard version of the Choretime 52" galvanized fan with butterfly shutter moves 24,500 cfm @ 0.10" static pressure and has an energy efficiency rating of 20.8 cfm/watt. With an air flow ratio of 0.76, the standard model is one of the top performing tunnel fans tested by the University of Illinois BESS Lab! The high capacity version of the same fan model has a slightly different blade angle which increases the air moving capacity of the fan to 27,300 cfm @ 0.10" static pressure (a 10% increase). The downside is that energy efficiency rating drops to 18.0 cfm/watt. How will this affect a producer's operating costs?

New 50' X 500' Broiler House (target air velocity = 600 ft/min)

	Standard Capacity Fan (model 49519-22)	High Capacity Fan* (model 49519-21)
Number of tunnel fans	12	11
Air speed	620 ft/min	630 ft/min
Yearly operating cost (per fan)	\$401	\$520
Total tunnel fan yearly electricity cost (\$0.10 Kw*hr)	\$4,810	\$5,710
Yearly electricity savings	\$900	-
5-year electricity savings (per house) 5-year electricity savings for a four-house farm	\$4,500 \$18,000	-
Cost of the additional fan	\$900	-

*Over 75% of the above 52" galvanized butterfly fans sold are high capacity versions.

PUTTING KNOWLEDGE TO WORK

COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES, COLLEGE OF FAMILY AND CONSUMER SCIENCES
WARNELL SCHOOL OF FOREST RESOURCES, COLLEGE OF VETERINARY SCIENCES

The University of Georgia and Fort Valley State University, the U.S. Department of Agriculture and counties of the state cooperating.
The Cooperative Extension Service offers educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or disability.
An equal opportunity/affirmative action organization committed to a diverse work force

Electricity rates are increasing. It is not unrealistic to believe that within the next ten years electricity rates will increase to \$0.15 per Kw*hr or higher (some regions of the U.S. are already paying 0.15 Kw*hr). What is a high capacity fan going to cost a producer in the future?

50' X 500' Broiler House
(target air velocity = 600 ft/min)

	Standard Capacity Fan (model 49519-22)	High Capacity Fan (model 49519-21)
Number of tunnel fans	12	11
Yearly operating cost (per fan)	\$602	\$779
Total tunnel fan yearly electricity cost (\$0.15 Kw*hr)	\$7,220	\$8,570
Yearly electricity savings	\$1,350	-
5 year electricity savings (per house) 5 year electricity savings for a 4 house farm	\$6,750 \$27,000	-

All fan manufacturers sell high capacity versions of many of their tunnel fans. They are popular, in part, because too many people are just looking at how much air a fan moves and not at how much it will cost to operate. Though decreasing the number of fans through the use of high capacity fans will decrease the initial cost of a house, it will increase operating costs and thus reduce producer income. The point is fewer tunnel fans do not necessarily result in lower operating costs. When purchasing tunnel fans knowing how much air a fan moves is important....knowing how much it will cost to operate is equally as important.



Michael Czarick
Extension Engineer
(706) 542-9041 542-1886 (FAX)
mczarick@engr.uga.edu
www.poultryventilation.com

Trade and brand names are used only for information. The Cooperative Extension Service, The University of Georgia College of Agriculture and Environmental Sciences does not guarantee nor warrant the standard of any product mentioned; neither does it imply approval of any products to the exclusion of others that may also be suitable.

Color copies of the newsletters as well as others can be downloaded from www.poultryventilation.com

To receive Poultry Housing Tips via email contact us at mczarick@engr.uga.edu