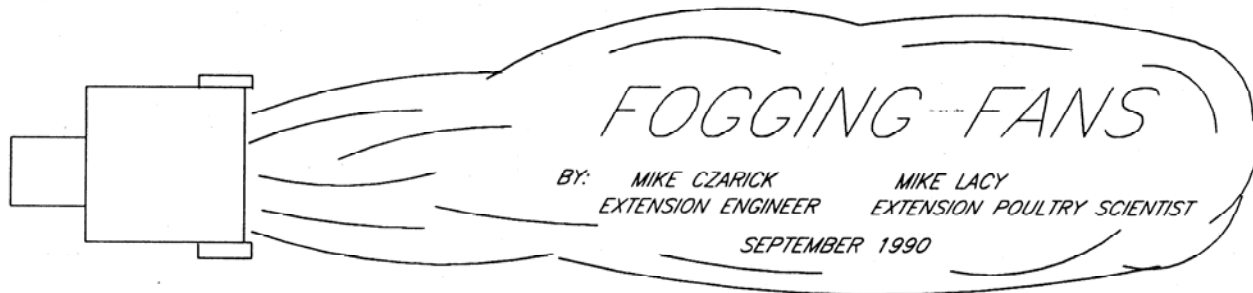


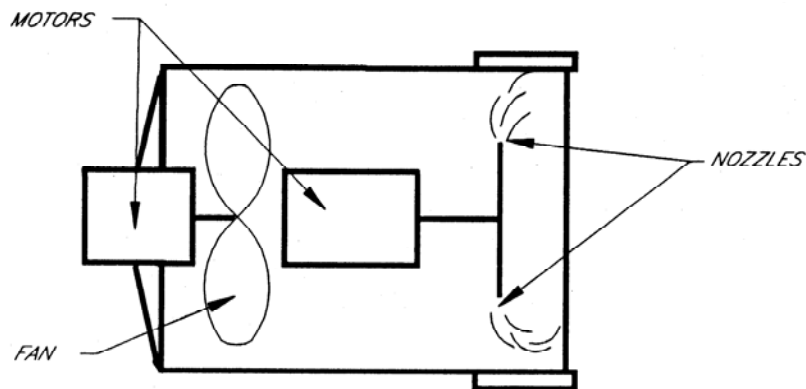


The University of Georgia Cooperative Extension Service

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



A self-contained fogging-fan unit is currently on the market which may have application to the poultry industry. The unit consists of two, 1/2 hp motors. The first drives a 24" fan while the second, located directly in front of the first, rotates a wand with a fogging nozzle at each end at a high speed (see figure). As the nozzle assembly spins, centrifugal force causes water to be sprayed from the nozzles under high pressure generating a very fine mist. The mist is then moved out from the unit and distributed by the direct drive fan. Preliminary tests conducted at North Carolina State University found that the fogging-fan produced cooling similar to a high pressure fogging system.



Field application of the fogging-fan is presently being studied by the Extension Engineering and Poultry Science Departments of the University of Georgia. The fogging-fans have been placed in both tunnel-ventilated and curtain-ventilated poultry houses. Preliminary findings show between five and ten degrees of cooling are possible with these units.

PUTTING KNOWLEDGE TO WORK

The University of Georgia and Ft. Valley State College, the U.S. Department of Agriculture and counties of the state cooperating.
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The first tests were conducted in two, tunnel-ventilated, dark-out pullet houses. These houses were being used temporarily to grow a flock of broilers at the time. The 40' X 400' houses had four, 48" exhaust fans. The producer was running water over the light-traps to try to produce some cooling with limited success. Two fogging-fan units, one placed in the front and another 1/4 of the way down the house, were installed in one of the houses and temperatures were recorded. With a combined output of approximately 80 gallons an hour the fogging-fans reduced house temperature by approximately 7°F (see table). The producer noted a 50% reduction in mortality in the house with the fogging-fan units.

	<u>Front</u>	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Rear</u>
Unmodified house	90.5°F	92.3°F	93.5°F	93.7°F	94.6°F
Fogger-fan house	84.2°F	82.0°F	84.0°F	86.2°F	87.2°F
			Outside Temperature	92.0°F	
			Outside Humidity	51 %	

Recently two fogging-fan units were placed in a curtain-ventilated, broiler-breeder house. Each unit cooled the air for a distance of approximately 100'. Within this 100' area, cooling ranged between four to ten degrees. The cooling zone probably could have been increased to 125' or more if there had been more circulation fans in the house (the house only had six-36" fans). Cooling the entire house would have probably required three to four units. It is important to note that some nest wetting did occur in the immediate vicinity of the fogging-fans.

There are a number of advantages to a fogging-fan cooling system. The unit is portable (about 50 pounds) and can easily be moved from place to place. All that is required is a power outlet and a water hose. The unit requires no booster pump and installation typically takes less than 15 minutes.

Maintenance would likely be minimal since there are only two nozzles per unit. The nozzles have fairly large orifices which should reduce clogging problems. Producers who have poor water quality on their farms and problems with 1 or 2 gal/hr nozzles clogging frequently may find that fogging-fans are what they have been looking for.

Water flow rate through the unit can be manipulated using an adjustable flowmeter located on the side of the unit. The fogging-fan can be adjusted to put out as little as 5 gallons per hour (for use with small birds or on humid days) or as much as 40 gallons per hour to provide maximum cooling.

There are some disadvantages. Since so much fog is being generated in one location, there is a tendency for litter, birds, and equipment to become wet in the immediate

vicinity of the fogging-fan. Due to the possibility of house wetting, care should be taken when considering their use in breeder or commercial egg facilities.

The unit can use a significant amount of electricity because of the two, 1/2 hp motors. As with most heavy equipment the 220 volt option is preferable to the 120 volt. At 220 volts the unit draws approximately 8 amps of current (a 48" fan draws between six and eight amps). The units wired for 120 volts pull about 16 amps, too much for most circuits.

Electricity usage of the fogging-fans will drop on a model currently being designed which requires only one motor instead of two. The use of a single motor should also drop the price which is presently between \$500 and \$600.

It is difficult to determine specifically how many of these units would be required in a specific type of house. Preliminary observations indicate somewhere between two and four units. The precise number of units would depend on the house length and type of ventilation system.