United States Department of Agriculture
NRCS Natural Resources Conservation Service

Farmstead Energy Improvement

(Stir Fans in Poultry Houses)

Alabama Job Sheet No. AL374D

Definition

Heat has a tendency to rise. The addition of stir fans in a poultry house can provide uniform heat distribution from ceiling to floor causing the heating system to operate less frequently and thereby saving the farmer energy costs. Stir fans are used to complement the ventilation system by improving moisture removal from litter, causing floor conditions to be more uniform, improving the ventilation efficiency, and increasing bird performance.

General Information

The addition of stir fans in a poultry house can result in heating fuel savings of 5 – 25%.

Stir fans are either recirculating type fans which consist of basket or orifice fans that push air horizontally, or paddle fans sometimes referred to as Casablanca fans that push air vertically. For a typical drop-ceiling type poultry house, about 6-8, 18-20 inch recirculating fans should be adequate to circulate the heated air (3 in the brood end and 3 in the off-end of the house). For older high-ceiling houses, one fan between each baffle should be installed in the brooding chamber or about 8 paddle fans can be used (5 in the brood end and 3 in the off-end of the house). As a general rule-of-thumb, stir fans should be capable of moving about 10% of the air volume in the house each minute.

Some stir fans are equipped with variable speed control to calibrate fans for desired airflow and mixing.

Fans must have high quality bearings, be rated for poultry house use, and have an agricultural rating by the Underwriter's Laboratories.

Installation

Installation of stir fans require proper placement of fans and new electrical work. The installation should be certified by the contractor doing the installation.

Paddle fans should be installed to move air toward the ceiling and not down toward the birds. Recirculating fans should be positioned to move air toward the end wall in each chamber. The recirculating fan located in the

brooding chamber closest to the brood curtain may be pointed toward the brooding curtain.

Stir fans can be controlled by electronic controller to run between ventilation cycles or run continuously. Fans not operated by controller can be equipped to operate with thermostats or sensor controls located in the ceiling and set approximately 5 degrees above the target temperature.

Fans in the brood chamber and grow out (off-end) area are generally wired to allow separate operation.

Some fans may require additional supporting structure in the ceiling as well as a means to easily move the fans out of the way during clean-out and catch.

Operation and Maintenance

Adjust the variable rate of the fans to achieve the desired results.

Fans and fan cages must be kept clean with routine maintenance.

References

NRCS AL Conservation Practice Standard, Code 374 – Farmstead Energy Improvement

Paddle and Recirculating Fans – A Progress Report, Issue No. 13, National Poultry Technology Center, Auburn University, September 2001.

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Stir Fans

Poultry Farmer:_____ County:_____ Date: _____

Integrator:_____ Number of houses:_____

Farm No.: _____ Tract No.:_____ Assisted By:_____

House One:

Type fan: _____ , Number: _____

Are all houses the same ( ) yes ( ) no. If no, make same calculations for each house.

Total stir fans (all houses):

Type fan: _____ , Number: _____

Type fan: _____ , Number: _____

Type fan: _____ , Number: _____

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Farmer Certification:

I certify that I am not receiving other federal funds for new stir fans (USDA RD Rural Energy for America Program).

_____ _____

Name Date

Installation Certification (Contractor):

I certify that the stir fan installation in the poultry houses on this farm was completed according to sound industry standards.

_____ _____

Name Date

New Wiring Certification:

_____ _____ _____

Name License # Date