# DOCKETED

| | |
|---|---|
| **Docket Number:** | 17-AAER-06 |
| **Project Title:** | Commercial and Industrial Fans & Blowers |
| **TN #:** | 218197 |
| **Document Title:** | Bio-Environmental and Structural Systems Lab Comments Agricultural Ventilation Fan Efficacy Ratings |
| **Description:** | N/A |
| **Filer:** | System |
| **Organization:** | Illinois University of Illinois At Urbana-Champaign - Bio-Environmental and Structural Systems Lab/Steve Ford |
| **Submitter Role:** | Public Agency |
| **Submission Date:** | 6/13/2017 10:15:48 AM |
| **Docketed Date:** | 6/13/2017 |

*Comment Received From: Steve Ford*
*Submitted On: 6/13/2017*
*Docket Number: 17-AAER-06*

## Agricultural Ventilation Fan Efficacy Ratings

*Additional submitted attachment is included below.*

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

**Bio-Environmental and Structural Systems Lab**
**Department of Agricultural and Biological Engineering**
**372 Agricultural Engineering Sciences Building**
**1304 West Pennsylvania Avenue**
**Urbana, Illinois 61801**

**Phone: 217 333 9406**
**Fax: 217 244 0323**
**BESS.illinois.edu**

June 13, 2017
Docket # 17-AAER-06
2017 Appliance Efficiency – Phase 2 Pre-Rulemaking Commercial and Industrial Fans and Blowers
Subject: Agricultural Ventilation Fans

I respectfully suggest that the state of California allow evaluation of agricultural ventilation fan performance based on the current industry efficacy standard of cfm/Watt. The agricultural industry has long promoted efficiency in air movement.

**Cfm/Watt More Useful than FEI for End Users of Agricultural Ventilation Fans**
Do you know the mechanical efficiency of your car? Probably not and if you did, how would you as the end user apply this information. However, you likely know its' fuel efficacy based on miles per gallon. Likewise, the most useful fan energy measure in agricultural ventilation is an efficacy rating - cfm/Watt at rated static pressure. Cfm/Watt efficacy ratings focus on the common operating pressures of agricultural fans rather than an umbrella "one size fits all" fan efficiency rating developed for the wider fan industry.

**Established Agricultural Ventilation Fan Testing Program**
The agricultural ventilation industry has a history of supporting airflow and fan efficacy rating. The BESS Lab within the Department of Agricultural and Biological Engineering at the University of Illinois, Urbana-Champaign began publishing results in 1990. The airflow test chamber is based on *ANSI/AMCA 210-16, ASHRAE 51-16 Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating*. Test procedures are defined by *ASABE/S565 Oct2005 Agricultural Ventilation Constant Speed Fan Test Standard*. A searchable database is maintained at www.bess.illinois.edu . Currently at over 1600 fans, it is widely referenced by end users, public utility rebate programs, university extension professionals, ag fan manufacturers and ag building designers.

**Wire to Air - Established Ag standard Includes Drive Losses**
VFD and ECM technology is expanding in agricultural ventilation. This is a "wire to air" test methodology so any drive losses are included in the cfm/W rating. This is a useful measure moving forward.

I am happy to discuss further with commission staff if interested.

Sincerely,

Steve Ford
BESS Lab Manager
seford@illinois.edu