

## EcoFlush for odor control in a swine farm

**Product:** EcoFlush  
**Location:** Iowa, USA

**Trial setting:** Swine production plant

### Objective

Odor reduction in a commercial production swine farm.

Swine intensive production systems generate gases such as ammonia, amines and hydrogen sulfide that besides producing bad odors, cause health risks among the workers as well as the animals themselves. Some of the effects in workers are respiratory system inflammation, bronchitis, headaches, and after long-term exposure, asthma. The animals presented signs of stress with eye irritation and ear and tail biting.

### Methods

EcoFlush was tested in a 1600 pig farm in Iowa (USA), where animals were showing stress symptoms caused by gases emanating from their feces. There were also complaints by the neighbors regarding the bad smells coming from the farm.

Four kilograms of EcoFlush were added to the collection pit with a capacity of 570 cubic meters ( $7 \text{ gr/m}^3$ ), and 4 kilograms of EcoFlush were added to the pit below the farrowing barn. The breeding, gestation, and three nursery barns were treated daily with a solution of 0.5 kg of EcoFlush diluted in water (0.5 kilograms in 20 to 40 liters of water). According to the standard practice of the farm, the farrowing barn pit was flushed daily into the collection pit. The breeding, gestation and nursery barns were flushed weekly. The collection pit was emptied every six weeks, and the collected product was used a fertilizer in neighboring farms. After emptying each barn 4 kg of EcoFlush were added. An additional 4 kg of EcoFlush were added to the collection pit after each emptying as well as on the finishing barn where animals are kept for 10 weeks to 5 months depending on market demands.

Air samples were tested weekly in the same locations in one of the nursery barns and the finishing barn in order to determine the concentration of ammonia and amines, the temperature being monitored when the samples were collected.

## Results

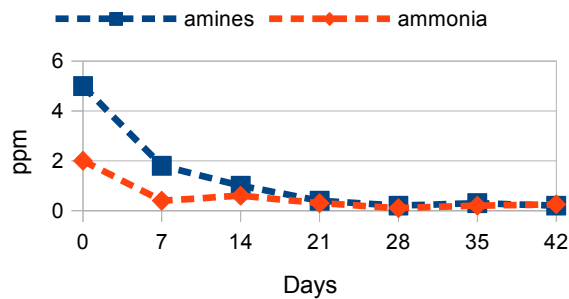
The odor diminished drastically during the treatment period. The animals that had shown stress at the onset on treatment showed improvement as many of the stress symptoms such as red eyes and biting were eliminated after the first week of treatment. Efficiency while pumping was noted as the feces contained less lumps and were more liquid.

Ammonia and amines levels showed a continuous reduction in all the monitored barns during the application period of EcoFlush. During the last weeks of the treatment period (weeks 4 to 6) the concentrations of ammonia and amines in the nursery barn were below 2.5 and 5 ppm, respectively. The temperature increased during the trial, as it was also the beginning of summer.

The farm owner who has been using EcoFlush since the trial stated that before using the product he was able to get animals that weigh an average of 100 kg in a period of 180, while currently using EcoFlush the animals are reaching an average of 114 kg in 165 days.

The concentrations of amines and ammonia in the air of the nursery and finishing barns are shown in the following graphs.

### Nursery Barn



### Finishing Barn

