ABSTRACT

Rice field rats (Rattus argentiventer) are one of the rodents as well as enemies for farmers that can cause losses, one of the losses caused is the loss of rice plant productivity. Rice field mice can attack at all stages of rice plant growth, overnight a mouse can damage an average of 283 rice plants.

In general, rats are animals that have a characteristic smell of ammonia in their bodies and have a sensitive sense of hearing to the sound of ultrasonic waves. Therefore, in this study an environmentally friendly device has been designed, which can emit ultrasonic waves to repel rats, by detecting the movement and characteristic smell of ammonia contained in the rat's body. From the results of the study, it was found that with a frequency of 50 kHz rice field rats can be expelled, with the ppm content of ammonia in the body of rice field rats having a range between 11.48 ppm - 17.04 ppm, as well as Short Message Service (SMS) notifications as a monitoring process sent directly to user.

Keywords: *Productivity, rice plant phase, Ultrasonic waves, movement, ammonia, Short Message Service.*