

Wolfenbüttel, April 1st 2025

Sensation „Pan Mole“: Putting moles on the right track with the help of beam steering

We've all been there: the garden at home is a lush green, the lawn has been freshly scarified, fertilised and trimmed and is a lush feast for the eyes. But suddenly a small brown mound of earth spoils the idyll. A mole has moved in. The next day there are already three mounds and soon you have the feeling that you are seeing more brown than green (an effect that is unfortunately already familiar from politics).

However, some farmers have a far more serious problem than the garden owner next door, who are visited by the black and brown insect eaters. Even though the mole makes itself useful by eating some harmful insect larvae, it unfortunately doesn't always stay away from the growing crop underground. „The animals don't eat the fruit, but by digging tunnels and throwing up mounds, they sort the seeds and seedlings somewhat. As a result, the plants cannot grow optimally, harvesting is slower for us and the yield is lower,“ reports farmer Hackenpiep, who became aware of a new technical achievement from Pan Acoustics by chance and contacted the audio specialist from Wolfenbüttel.



This pleases both farmer and animal: Udo Borgmann presents the first successes of „Pan Mole“.

„Our company premises are in an idyllic location on the outskirts of the city and border directly on a field. We had noticed that molehills were diffusely spreading across the freshly tilled field,“ reports Udo Borgmann, CEO of Pan Acoustics, about the cornerstone of the „Pan Mole“ project. „As we all know, moles don't see very well. But many people don't realise that: Hearing is not their strong point either. But they do have an excellent sense of touch,“ says Borgmann, who is very interested in animals and the environment. „We have therefore developed a new loudspeaker with beam steering technology that primarily covers low-frequency ranges, i.e. precisely the frequency spectrum that moles can receive with their tactile antennae,“ explains Borgmann.



The structure of the line source with beam steering.



Mounds of earth like pearls on a string: „Pan Mole“ guides the moles along the edge of the field with sound.

„We had to try something out and have now found the right pieces of music that guide the moles along the edge of the field in a straight line in accordance with the chosen angle of radiation of the loudspeaker. They have enough space there, feel comfortable and seem to enjoy the sound. And so do the farmers.“

This effect, which was researched at the Aprilanium University of Music in cooperation with the zoological department of the University of Bollefeld, is known as the „linear flute phenomenon“ or the „Hamelin effect“ after the legend of the Pied Piper of Hamelin. Animal welfare organisations are also delighted that with „Pan Mole“ an instrument has been found that „kindly drives away“ moles without harming them.

Borgmann is continuing his research and is looking for project partners who are also interested in animals and technology.



Before the start of the project: The mole spreads all over the field.