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Detecting odour annoyance from poultry and pig production

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Background

Animal production farms have traditionally been situated in the rural areas well apart from densely populated urban areas. As urban areas grow, new transition zones where farms, urban population and e.g. recreation seek for their own space and how to fit together. Problems arise when farms need to grow or change their production and neighbours oppose the environmental permit due to expected odour annoyance.

Figure 1. The odour panel consisted of 8 panellists with different sensitivities of odour annoyance

Materials and methods

Odour annoyance was detected from two different farms, a broiler farm and a swinery, near an urban area. The odour emission was measured with an olfactometric method that is based on odour sensation of a panel of people with different sensitivities with annoyance of odour, Figure 1. The odour was measured as odour concentration, expressing the amount of dilution needed to make the air odourless, Figure 2.

The panellists approached the source of odour from 4 different directions defined according to the prevailing wind direction in the area, Figure 3.
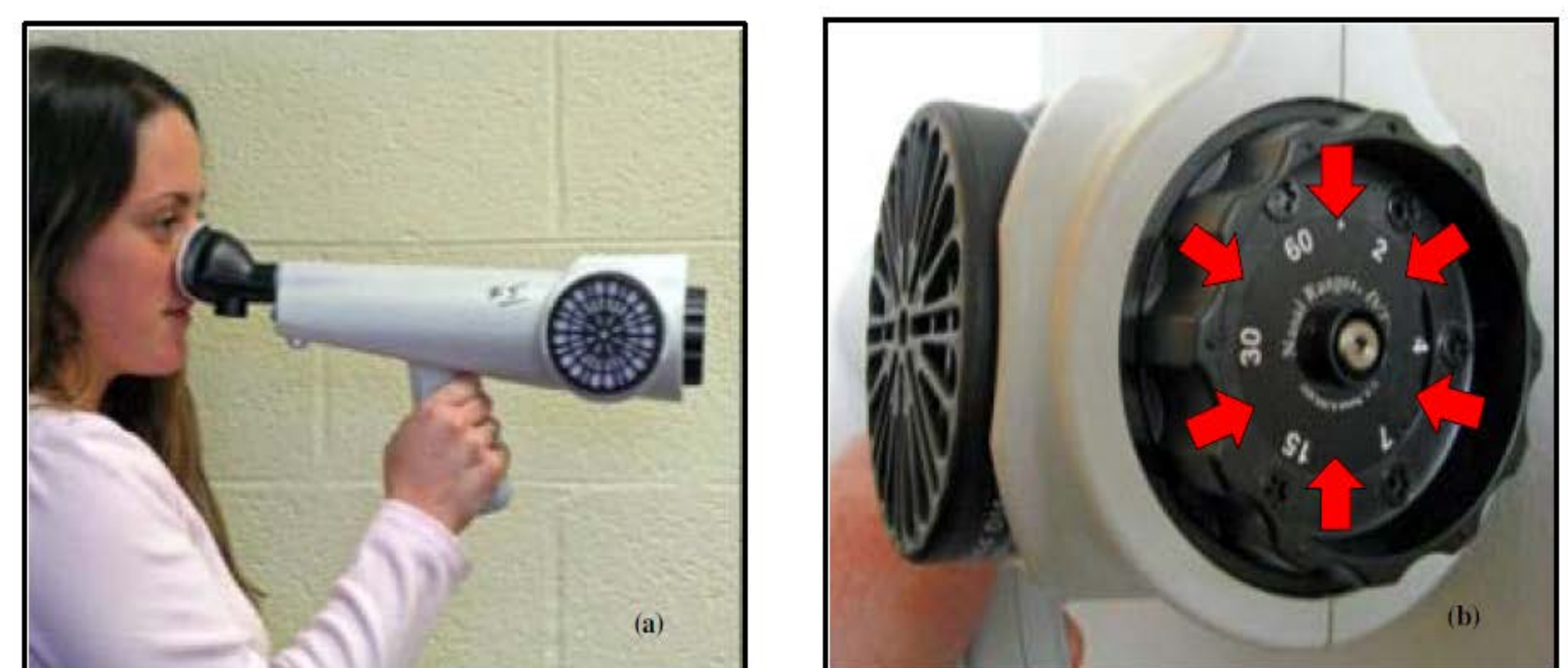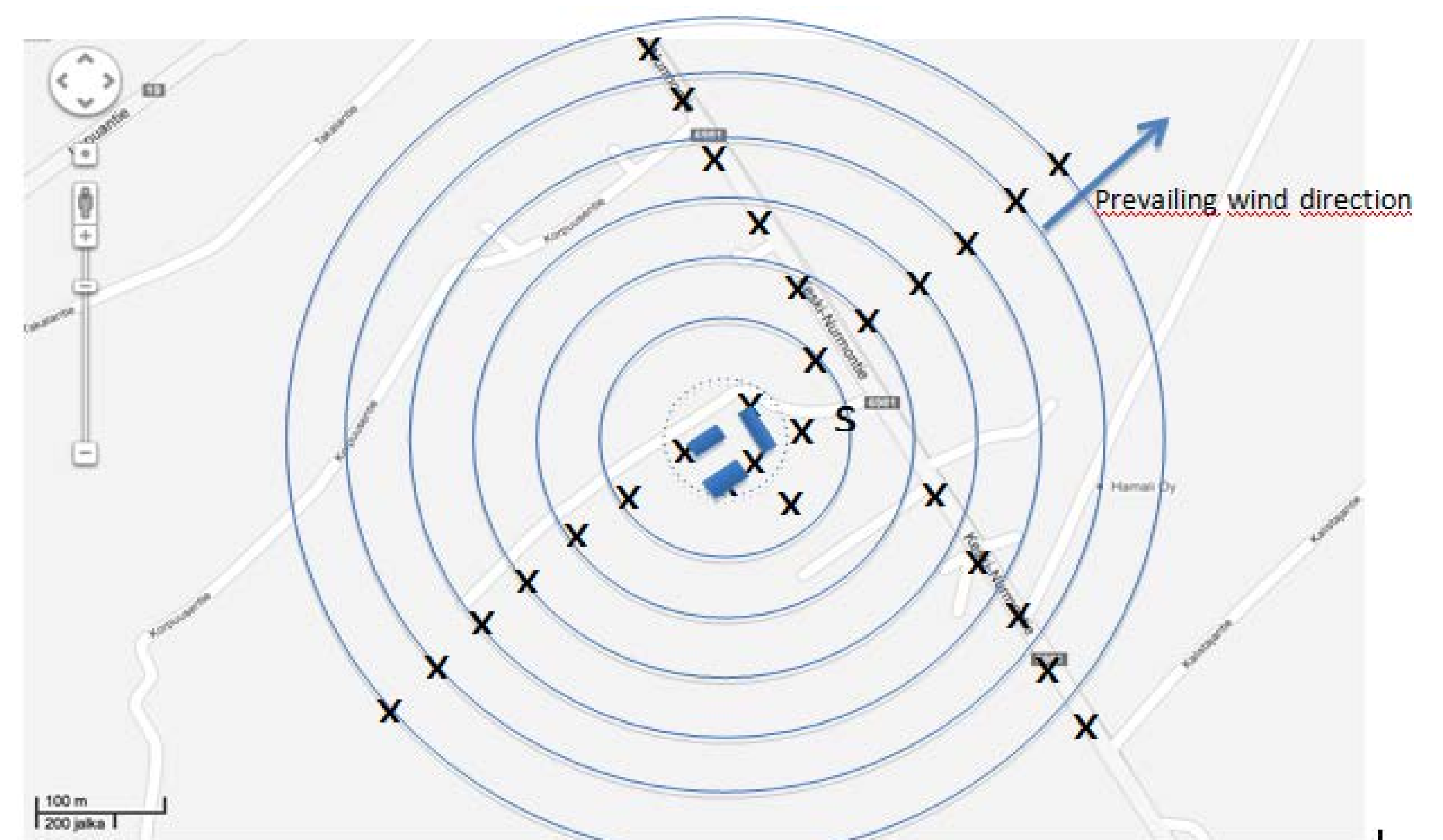

Figure 2. (a) The Nasal Ranger field olfactometer (NRO) in use. (b) D/T dilution dial located at the air intake end of the unit, which is unseen by the odor assessor during use (100% carbon-filtered air positions are marked with red arrows).

Figure 3. The odour measuring points were defined according to the prevailing wind direction at the area

Results

The results show that the odour from the farm was found stronger on areas which are situated downwind from the farm, Figure 4.

Odour was also found at intervals in other directions because (point 10 in the figure) the wind was quite low and the odour fall down all around the farm.
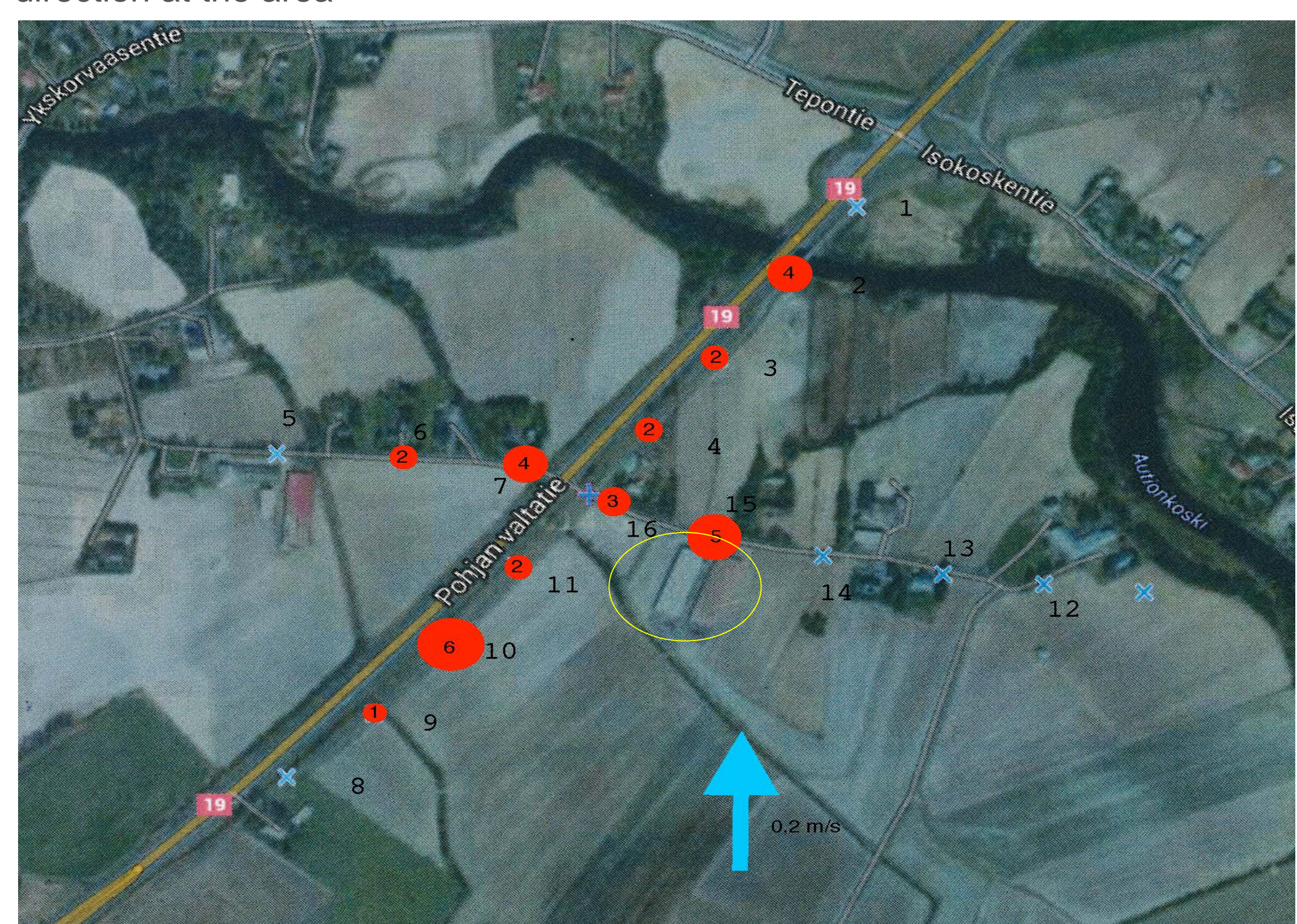

Figure 4. Odour emission detected by the panellists. The source of odour is inside the yellow circle. The number inside the red dot indicates how many of the panellists detected the odour.