

Nederlandse Voedsel- en Warenautoriteit Ministerie van Landbouw, Natuur en Voedselkwaliteit

# Climate indicators in pig housing

OIE June 2019 Renske van der Star, NVWA



# Netherlands

- No legal limits for gas concentrations for pigs
- Air/climate should not be 'harmful'
- To assess 'harmful' WUR identified 5 indicators: 2 environment based and 3 animal based





## Indicators

- Environment based: CO2 and NH3 concentration
- Animal based: red/dirty eyes, tail/ear biting, cleanliness



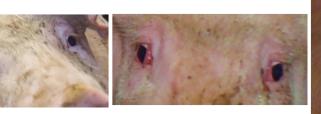
Signaalindicatoren bij handhaving van "Open Normen" voor dierenwelzijn Pilot klimaat in varkensstallen

Herman Vermeer en Hans Hopster



#### Protocol

- Measure gas concentrations at animal height
- Score animal based indicators
- > If both threshold for gas concentration as well as threshold for animal based scores have been exceeded → presumably harmful climate









| Jonge vleesvarkens (30-70 kg)   |                    |                 |       |       |                               |       |  |
|---|--------------------|-----------------|-------|-------|-------------------------------|-------|--|
|   | St                 | Standaard check |       |       | Indien uitbreiding observatie |       |  |
| Hoknummer   | Hok 1              | Hok 2           | Hok 3 | Hok 7 | Hok 8                         | Hok 9 |  |
| Aantal varkens per hok  |                    |                 |       |       |                               |       |  |
| Stal / afdelingsnummer  |                    |                 |       |       |                               |       |  |
|   | Signaalindicatoren |                 |       |       |                               |       |  |
| Ogen (grenswaarde 1)<br>0= wit en schoon 1= rood en schoon<br>2= wit en vuil 3= rood en vuil                                |                    |                 |       |       |                               |       |  |
| Dier bevuiling (grenswaarde 1)<br>0= schoon, 1=20-50%, 2=>50%   |                    |                 |       |       |                               |       |  |
| Staart (grenswaarde 1)<br>0= onbeschadigd 1=kleine wondjes<br>2= wonden met vers bloed<br>CO2 dierniveau (grenswaarde 3000) |                    |                 |       |       |                               |       |  |
| NH3 dierniveau (grenswaarde 20)   |                    |                 |       |       |                               |       |  |

| Oude vleesvarkens (70-110 kg)  |   |       |       |   |        |        |  |  |
|--|---|-------|-------|---|--------|--------|--|--|
|  | Standaard check                           |       |       | Indien uitbreiding observatie                       |        |        |  |  |
| Hoknummer  | Hok 4                                     | Hok 5 | Hok 6 | Hok 10  | Hok 11 | Hok 12 |  |  |
| Aantal varkens per hok   |   |       |       |   |        |        |  |  |
| Stal / afdelingsnummer   |   |       |       |   |        |        |  |  |
|  | Signaalindicatoren                        |       |       |   |        |        |  |  |
| Ogen (grenswaarde 1)<br>0= wit en schoon 1= rood en schoon<br>2= wit en vuil 3= rood en vuil         |   |       |       |   |        |        |  |  |
| Dier bevuiling (grenswaarde 1)<br>0= schoon, 1=20-50%, 2=>50%  |   |       |       |   |        |        |  |  |
| Staart (grenswaarde 1)<br>0= onbeschadigd 1=kleine wondjes<br>2=wonden met vers bloed                |   |       |       |   |        |        |  |  |
| CO2 dierniveau (grenswaarde 3000)  |   |       |       |   |        |        |  |  |
| NH3 dierniveau (grenswaarde 20)  |   |       |       |   |        |        |  |  |
|  | Score signaalindicatoren en interpretatie |       |       |   |        |        |  |  |
| Aantal keer overschrijding grenswaarde dier (grenswaarde 1) én                                       |   |       |       | Bij 3 of meer overschrijdingen                      |        |        |  |  |
| overschrijding CO2 en/of NH3 in één van de hokken 1 t/m 6  |   |       |       | (óók NH3 en/of CO2) worden                          |        |        |  |  |
| (met meeste overschrijdingen dier én CO2 en/of NH3)  |   |       |       | 12 hokken geobserveerd                              |        |        |  |  |
| Totaalscore overschrijdingen dier (grenswaarde 1) én CO2 en/of<br>NH3 in alle hokken 1 t/m 12 totaal |   |       |       | Bij totaalscore > 30<br>vermoeden afwijkend klimaat |        |        |  |  |



## Communication

- Communicated about indicators
- Announced that inspections on climate in pig housing would be performed in 2018
- > Inspections were unannounced



# **Inspection results - questions**

- > <u>Results inspections in 2018</u>
- Often measured NH3 exceeded threshold, but animal indicators did not (36/59)
- > Gas concentration incidental?
- Still 'harmful' or does it (also) depend on duration of exposure?



#### Now

- Protocol can be part of welfare inspection, if there is cause for further investigation
- Other indicators can still be taken into account
- Indicators can be used by farmers as well

