

## Questionnaire survey of disease prevalence and veterinary treatments in organic pig husbandry in the Netherlands

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DISEASE prevalence and veterinary treatments in organic animal production differ from conventional systems. According to the European Commission (EC) regulation on organic agricultural production (EC 2004), disease prevention is based on the principles that the feeding, housing and care of the animals should limit animal health problems so that they can be controlled mainly by prevention. If, despite these preventive measurements, treatment should be necessary, phytotherapeutic and homeopathic products should be used in preference to chemically synthesised allopathic veterinary medicinal products, provided they are therapeutically effective. Chemotherapeutics may be used under the responsibility of a veterinarian, and their use must be clearly recorded. The number of chemotherapeutic treatments allowed in organic animal production is limited, except for the use of vaccines and antiparasitics, and the use of chemotherapeutics for preventive treatments is prohibited. The restrictive use of chemotherapeutics, combined with access to pasture and a closer contact with wildlife, may have an impact on animal health and welfare.

Although different production systems and national disease situations may affect the health situations in organic pig production, surveys in the UK, Denmark, Austria and the Netherlands indicate that endo- and ectoparasites are a common and major problem in organic pig production (Nansen and Roepstorff 1999, Baumgartner and others 2001, Carstensen and others 2002, Day and others 2003, Hovi and others 2003). Physical injuries causing lameness, skin trauma and sunburn are the most common clinical findings in sows, and in slaughter pigs various herd-specific disease problems occur (Vaarst and others 2000). In Austria, a high prevalence of contagious diseases (leptospirosis, parvovirus and porcine reproductive and respiratory syndrome) has been observed, in addition to actinomycosis of the udder and diarrhoea in piglets (Baumgartner and others 2001). In Sweden, erysipelas is the most commonly observed disease in fattening pigs, while in France, the main diseases are neonatal and weaning diarrhoea in piglets, respiratory tract infections in slaughter pigs and urogenital infections in sows (Bénéteau 2001).

This short communication describes a study in which a questionnaire was used to gather information about diseases and practices in the use of medication to treat diseases in organic pig husbandry in the Netherlands.

In spring 2003, in order to gather information about practices for disease prevalence and veterinary treatment, organic pig producers in the Netherlands were contacted. If a farm had at least 10 sows or 60 fattening pigs, the pigs were kept for commercial purposes, the farm was not a research, governmental or part-government funded centre, the farm was certificated by Skal (the inspection organisation for organic production methods in the Netherlands) in 2002, there was no poultry on the farm (in relation to the avian influenza situation in the Netherlands at that time), and the farmer agreed to cooperate, a questionnaire was sent to the premises.

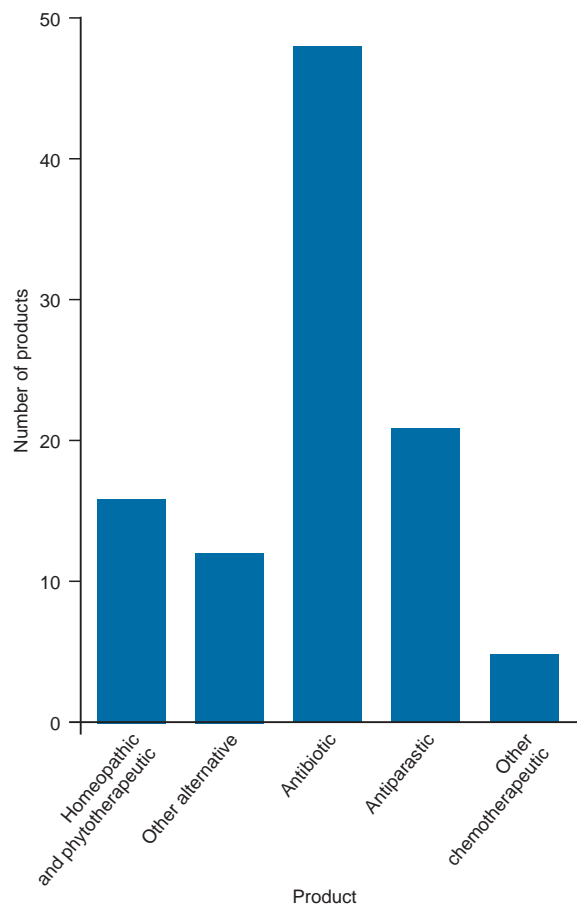


FIG 1: Type of products used in organic pig farming in the Netherlands in 2002

The questions in the questionnaire related to housing, health and veterinary treatments in 2002. A few days after the questionnaire was sent, the farm was visited to go through the completed questionnaire and to check the practises on the farm.

Of the 91 organic pig farmers who were contacted, 60 fulfilled the criteria for participation in the survey; of these, 37 (62 per cent) agreed to participate. They filled in and returned the questionnaire and the farms were visited. At 30 of the 37 farms (81 per cent) there was another agrarian or non-agrarian income in addition to pig production. Twenty-one of the 37 farms (57 per cent) became SKAL certified in 2002, while the other 16 farms had been certified by SKAL for an average of 3.8 (range 1.1 to 9.0) years. All farms participated in and were certified by the Integrated Chain Control (IKB), the quality system of the Dutch meat industry. On all the farms, some form of biosecurity was employed, such as separate clean and non-clean zones (14 farms), biosecurity facilities (28 farms), the use of separate clothes and boots before entering the pig houses (36 farms), the use of disinfection mats (29 farms), and the registration of visitors (all farms). All the farms were members of an animal health service. Seven farms had breeding sows with, on average, 141 (range 45 to 350) sows and 565 (range 100 to 1200) piglets, 12 farms had fattening pigs with, on average, 228 (range 65 to 589) animals, and 18 farms had breeding sows and fattening pigs with, on average, 64 (range 15 to 150) sows, 229 (range 65 to 500) piglets and 359 (range 60 to 750) fattening pigs. On 19 of the 25 farms with breeding sows, the sows had access to a grazing area, and on the other six farms there were outdoor runs with concrete floors. On all 12 farms with fattening pigs there were partially covered outdoor runs with concrete floors. A large variety of pig breeds were used on all the farms. On the 25 farms with breeding sows, the sows were either organic and

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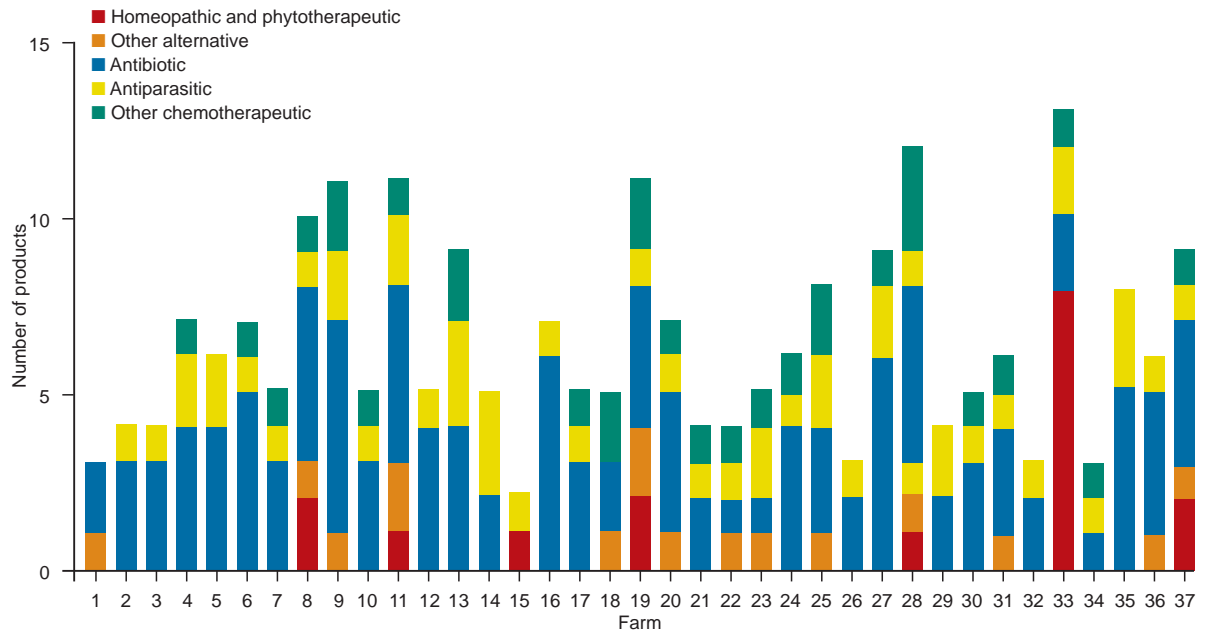


FIG 2: Different types of products used on each of the 37 organic pig farms surveyed in the Netherlands in 2002

had been raised at the farm (nine farms) or had been bought from conventional breeders (16 farms).

On 34 of the farms (92 per cent), treatments and the use of chemotherapeutics or antibiotics were recorded, but on the other three farms this was not done. Non-chemotherapeutic treatments were only recorded on three farms. The pigs had been vaccinated against Aujeszky's disease (compulsory) on all the farms, against erysipelas on 20 farms, against porcine parvovirus and against *Escherichia coli* on 13 farms, and against *Mycoplasma* species on seven farms. Furthermore, on one to three farms pigs had been vaccinated against porcine reproductive and respiratory syndrome, pleuropneumonia, atrophic rhinitis or swine influenza.

In the responses to the questions, the occurrence of several health problems were mentioned: pneumonia (29 farms), arthritis (27 farms), meningitis (19 farms), colibacillosis (17 farms), mastitis (17 farms), endometritis (17 farms), endoparasites and ectoparasites (five farms), abortion (11 farms), umbilical hernia (11 farms), porcine multisystemic wasting syndrome (10 farms), swine influenza (nine farms) and swine dysentery (four farms).

In total, 102 different products were used for the prevention of anaemia and for the treatment of parasites and diseases. Of these, 28 products were homeopathic, phytotherapeutic or other alternative products, and 74 were chemotherapeutic products that had been approved by the Dutch Veterinary Medicines Board (Fig 1).

Chemotherapeutic products were used on all 37 farms (Fig 2). On all but one farm (97 per cent), one to three antiparasitic products were used, and of the 21 different antiparasitic medicines that were used, one was an anticoccidial, 10 were anthelmintics, three were anti-ectoparasitics and seven were directed against helminths and ectoparasites. On all but two of the 25 farms with breeding sows (92 per cent), the piglets were supplemented with iron. Antibiotics were used on all but one farm (97 per cent). In total, 48 different antibiotics were used, and on average 3.4 (range one to six) different antibiotics were used on each farm. The other chemotherapeutics used were, besides iron, an analgesic and an electrolyte solution.

On 16 farms (43 per cent) homeopathic, phytotherapeutic or other alternative products were used (Fig 2). In total, 11 different homeopathic products and five different phyto-

therapeutic products were used on seven farms (19 per cent). Four of the phytotherapeutic products used were directed against diarrhoea and one was intended to increase disease resistance. The average number of homeopathic and phytotherapeutic products used on the seven farms was 2.6 (range one to eight). The 12 other alternative products were used on 14 farms (38 per cent) and were mostly directed against diarrhoea (involving some acidifiers) or to increase disease resistance.

In contrast to the situation in organic pig farming in Austria, where clothes for visitors were provided at only 25 per cent of the farms and only 65 per cent of the farms were members of an animal health service (Baumgartner and others 2001), all the Dutch organic pig farms employed biosecurity measures and were members of an animal health service. The high hygiene measures are most likely a consequence of participating in the IKB quality system. In Dutch pig husbandry, vaccinations are typically initiated because of health problems on the farm (de Groot and others 2004). The most frequently used vaccinations, against erysipelas and against parvovirus, are the ones that are recommended in Sweden from a welfare point of view (Hämeenöja 2001). Vaccination against mycoplasmas is also carried out in organic pig farming in Austria (Baumgartner and others 2001). On almost all the farms with breeding sows, the piglets were treated with iron to prevent anaemia. In addition, chemically synthesised antiparasitic products were used on almost all the farms. Nevertheless, parasites were mentioned as being a health problem by more than half of the farmers, and, based on a survey of gastrointestinal parasites carried out in the same year (Eijck and Borgsteede 2005), it is most likely that pigs on even 90 per cent of the farms may have been infected with parasites. Although endo- and ectoparasites are a common problem in organic pig production (Nansen and Roepstorff 1999, Baumgartner and others 2001, Carstensen and others 2002, Day and others 2003, Hovi and others 2003), other health problems may exist relating to different production systems and national disease situations (Hovi and others 2003). Although in Denmark very few clinical diseases are recorded and lung health is improved (Feenstra 2000, Vaarst and others 2000), as in the UK (Day and others 2003) and Sweden (Hansson and others 2000), pneumonia, arthritis and meningitis are identified as being health problems.

Furthermore, in Austria (Baumgartner and others 2001) and France (Bénnéteau 2001), neonatal and weaning diarrhoea is a health problem in organic pig farming.

This present study shows that the use of homeopathic, phytotherapeutic and other alternative products in veterinary treatment in organic pig husbandry in the Netherlands is limited. Although the infection pressure may be reduced due to wider space standards and the limited number of animals on farms, chemotherapeutics were widely used on all farms. Also in Austria and the UK, homeopathy does not play the important role in veterinary treatment as described in the EC regulation (Baumgartner and others 2001, Day and others 2003). This may well be related to the fact that the therapeutic effect of homeopathics and phytotherapeutics is unclear as a lot of the alternative treatments have not been proven scientifically (Hämeenöja 2001, Løken 2001). Thus, for the time being, the use of chemotherapeutics to avoid suffering or distress in organic pig farming in the Netherlands, and probably the whole EU, will continue.

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## References

- BAUMGARTNER, J., LEEB, T., GUBER, T. & TIEFENBACHER, R. (2001) Pig health and health planning in organic herds in Austria. Proceedings of the Fifth Network for Animal Health and Welfare in Organic Agriculture Workshop. Eds M. Hovi, M. Vaarst. Rødding, Denmark, November 11 to 13, 2001. Reading, University of Reading. pp 126-131
- BÉNNÉTEAU, E. (2001) Production et dominantes pathologiques du porc biologique. *Bulletin des Groupements Techniques Veterinaires, Hors-Série Elevage et Agriculture Biologique* **May-August**, 85-90
- CARSTENSEN, L., VAARST, M. & ROEPSTORFF, A. (2002) Helminth infections in Danish organic swine herds. *Veterinary Parasitology* **106**, 353-364
- DAY, J. E. L., KELLY, H., MARTINS, A. & EDWARDS, S. A. (2003) Towards a baseline assessment of organic pig welfare. *Animal Welfare* **12**, 637-641
- DE GROOT, J., EIJCK, I. A. & BOERSMA, W. J. (2004) Vaccinations in pig health care in the Netherlands – analysis of a questionnaire among veterinarians. *Tijdschrift voor Diergeneeskunde* **129**, 252-260 (In Dutch)
- EC (2004) Council Regulation (EC) Number 1804/1999 of 19 July 1999 supplementing Regulation (EEC) Number 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include livestock production. [www.europa.eu.int/eurlex/en/archive/1999/l\\_22219990824en.html](http://www.europa.eu.int/eurlex/en/archive/1999/l_22219990824en.html). Accessed June 10, 2005
- EIJCK, I. A. J. M. & BORGSTEEDE, F. H. M. (2005) A survey of gastrointestinal pig parasites on free range, organic and conventional farms in the Netherlands. *Veterinary Research Communications* **29**, 407-414
- FEENSTRA, A. A. (2000) A health monitoring study in organic pig herds. In Proceedings of the NJF-seminar number 303. Ecological Animal Husbandry in the Nordic Countries. Eds J. E. Hermansen, V. Lund, E. Thuen. Horsens, Denmark, 16 to 17 September, 1999. Tjele, Danish Research Centre for Organic Farming, pp 107-112
- HÄMEENOJA, P. (2001) Animal health and welfare – pig production. *Acta Veterinaria Scandinavica Supplementum* **95**, 33-36
- HANSSON, I., HAMILTON, C., EKMAN, T. & FORSLUND, K. (2000) Carcass quality in certified organic production compared with conventional livestock production. *Journal of Veterinary Medicine B, Infectious Diseases and Veterinary Public Health* **47**, 111-120
- HÖVI, M., SUNDRUM, A. & THAMSBORG, S. M. (2003) Animal health and welfare in organic livestock production in Europe: current state and future challenges. *Livestock Production Science* **80**, 41-53
- LØKEN, T. (2001) Alternative therapy of animals – homeopathy and other alternative methods of therapy. *Acta Veterinaria Scandinavica Supplementum* **95**, 47-50
- NANSEN, P. & ROEPSTORFF, A. (1999) Parasitic helminths of the pig: factors influencing transmission and infection levels. *International Journal of Parasitology* **29**, 877-891
- VAARST, M., ROEPSTORFF, A., FEENSTRA, A., HGEDAL, P., LARSEN, V. A., LAURITSEN, H. B. & HERMANSEN, J. E. (2000) Animal health and welfare aspects of organic pig production. In Proceedings of the NJF-seminar number 303. Ecological Animal Husbandry in the Nordic Countries. Eds J. E. Hermansen, V. Lund, E. Thuen. Horsens, Denmark, 16 to 17 September, 1999. Tjele, Danish Research Centre for Organic Farming, pp 77-78