

Welsh Government Consultation – Agricultural Waste Call for Evidence.

A Comment on the Disposal of Dog Waste on Agricultural Land by Dog Breeders.

C.A.R.I.A.D. Care and Respect Includes All Dogs

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1 Dog breeding, dog waste and the agricultural sector in Wales

1.1 In 2013 there were 234 licensed dog breeding premises in Wales¹. These kept approximately 6,300 breeding dogs (bitches and stud dogs)¹. Additionally, each premises will house puppies produced. An estimated 20,000 puppies are produced in Wales by licensed breeders each year. Licensed breeders range in Wales range in size from a minimum of 5 breeding dogs to almost 200¹. The average size of these establishments is 28 breeding dogs¹. It is likely that at least an equivalent number of breeding dogs are kept on unlicensed premises² with corresponding numbers of puppies produced.

1.2 An adult dog, on average, will produce about 400 grams of faeces each day. This will vary with size of dog but typically is likely to be in the range 300 to 500 grams per day. Volumes of faeces produced by licensed breeders alone in Wales are of the order of 2.6 tonnes per day (just for adult dogs), 18 tonnes per week, 940 tonnes per year. As stated, these figures may reasonably be doubled to include faeces produced by dogs in unlicensed premises.

1.3 The vast majority of volume commercial dog breeders in Wales are based on farms. These are concentrated particularly in the South-West in the counties of Ceredigion, Carmarthenshire and Pembrokeshire, though farm-based volume dog breeders occur widely across Wales. Almost all such farms are active dairy or sheep farms, or in a proportion of cases both.

1.4 Dog waste produced by dog breeders on farm premises requires to be disposed of properly to prevent disease risk to farm animals, to humans through potential contamination of the food chain, and to humans and other animals kept on or visiting farm premises. There is now extensive evidence that in very many cases dog waste has frequently been disposed of by operators of such premises in ways that create significant disease risks and are inconsistent with environmental and health guidelines. There is a major concern in particular with the creation of disease risks to livestock by the

practice of spreading untreated dog faeces on pasture land by farmers who are operating a dog breeding establishment. This risk applies both to those formally 'licensed' and to unlicensed breeders.

1.5 Dog breeding is not an agricultural activity. It is not concerned with food production. It rightly attracts business rates as a non-agricultural activity, and is widely defined as such. However, the co-existence of often large scale dog breeding operations alongside sheep and cattle farms, often using farm buildings as kennels and the large volumes of waste produced means that full consideration should be applied to the proper disposal of this waste on agricultural sites.

2 Disease risks to livestock of exposure to dog waste

There are a number of disease risks associated with the exposure to, contamination by or consumption of dog faeces by livestock. The most significant in the U.K. are discussed briefly below (though this list is not exhaustive).

2.1 Neosporosis

2.1.1 *Neospora caninum* is a coccidian parasite which is an important cause of abortion in livestock. The sexually reproductive stage occurs in the dog host³. Eggs (oocysts) passed in the faeces of the dog can be ingested by cattle which become permanently infected developing tissue cysts. Oocysts sporulate (become infective) in the environment within 24-72 hours. Pregnancy activates the cysts, and active infection causes spontaneous abortion. Congenitally infected calves may be born weak or with neurological deficits, though most infections are sub-clinical.

2.1.2 Transplacental transmission from an infected cow to the developing foetus may occur in multiple pregnancies of the same cow. Moreover, because the majority of congenital infections are sub-clinical, congenitally infected heifer calves may remain in the breeding herd and in turn may pass infections to their own offspring. This endogenous transplacental transmission enables maintenance within a herd even if it does not have frequent transmission from dogs.

2.1.3 *Neospora caninum* is the most frequently diagnosed cause of bovine abortion in the U.K. where it is estimated to cause 13% of all abortions⁴. The majority of such infections are understood to derive congenitally via transplacental transmission, though initial infection of a heifer is likely to have occurred by contamination with dog faeces. Environmental resistance of *N. caninum* oocysts is presumed to be of the order of months to years in the environment.

2.1.4 *Neosporum caninum* is a major infective cause of abortion which has not been controlled yet by vaccination or effective preventative treatment. *N.caninum* infection has been detected in a significant minority of sheep aborted fetuses.

2.1.5 Veterinary advice is that contamination of livestock feed (this includes pasture) with canine faeces should be prevented⁵. Further, dogs should not be allowed to ingest bovine placental tissues, fetal membranes, or other raw meats. Breeding bitches that have previously developed clinical neosporosis or have whelped affected pups in the past should not be bred from.

2.2 Sarcocystosis

2.2.1 *Sarcocystis spp.* include single-celled parasites which produce tissue cysts in infected sheep, often leading to condemnation of the carcass. Infected livestock will though most often show no overt symptoms unless there is a high level of infection. Sarcocystosis can be passed from the ewe to the lamb. Dogs can act as definitive hosts for the parasite, becoming infected if they eat contaminated carcasses or meat. They in turn can transmit infection through eggs contained in their faeces if these are eaten (eg on pasture) or occur in contaminated water supplies.

2.2.2 Since route of transmission depends on exposure of a dog (or other definitive host) to infected carcasses the likelihood of an infective cycle is reduced compared to neosporosis but is nonetheless real. There is no vaccine available for use with sheep and direct treatment is costly and often impractical. Prevention of transmission requires that dogs not be allowed to eat meat from fallen stock, or other material such as placentas or foetal material. Prompt disposal of any carcasses is implied⁷. Prevention of contamination of pasture and water by dogs is important.

2.3 Echinococcosis (also known as hydatid disease)

2.3.1 *Echinococcus spp.* are tapeworm parasites⁶. *E.granulosus* causes cystic echinococcosis (CE) in humans and livestock and *E.multilocularis* causes human alveolar echinococcosis (AE). The dog is the major definitive host of *E.granulosus* and is also a source of human infection for *E.multilocularis*. Dogs become infected when they ingest hydatid cysts in carcasses or meat from infected livestock.

2.3.2 Hydatid disease is infection with immature tapeworms of the *Echinococcus* genus. The disease may take many years to develop and produce clinical symptoms⁸. The tapeworm is found most commonly in dogs that have eaten infected carcasses or meat from sheep. Eggs produced by the adult tapeworm in the dog are passed in the faeces and can be transmitted to sheep or humans through various routes, including for sheep consumption of infected grass or feedstuffs. The egg hatches in the intestine of the sheep (or person) and subsequently develops into cysts particularly in the lungs and liver. There are almost no signs of presence of the disease in sheep or dogs.

2.3.3 There may be up to 5% loss of productivity in sheep, but the majority of losses to the farmer are through condemnations. Risk of transmission of the tapeworm to humans is viewed as an important concern. There is a strain of *E.granulosus* in Britain that infects horses⁸.

2.3.4 Hydatid disease has been found to be more prevalent in Wales than in other areas of Britain, reflecting at least partially the high population of sheep and extensive grazing practices^{9,10}.

2.4 Campylobacter

2.4.1 *Campylobacter jejuni* is a leading bacterial cause of human enteritis⁶. Contact with infected dogs, especially diarrheic dogs, can increase risk of acquiring *C.jejuni*. Prevalence rates are from 10% to 30% in healthy dogs to 50% to 75% in diarrheic dogs and puppies. Risk factors associated with bacterial shedding include high-density housing and age less than 6 months. Control and prevention of zoonotic infection depends on preventing contact with materials contaminated eg through faeces.

2.5 Cryptosporidium

2.5.1 *Cryptosporidium parvum* is a single-celled pathogen that generally causes short-lived diarrhea in humans⁶. However, it can cause very serious illness in individuals who are immuno-compromised. Amongst others, *C.parvum* is quite often identified as a cause of neonatal diarrhea in calves. Infection from dog to human or dog to livestock is generally not thought to be significant or widespread, but there is the potential for transfer of infection from dogs to humans eg through contact with faeces. Given the small but important potential for serious illness by transmission to immuno-compromised individuals, canine faecal contamination (eg of pasture land) may create a health risk.

2.6 Viruses

2.6.1 The potential for viral infection of livestock by dog faeces or of human infection through contamination of livestock or animal products does not appear to have been extensively investigated or to date raised as a matter of significant concern. However, seeking advice from the European Commission CALLISTO research project which examines zoonoses associated with companion animals, C.A.R.I.A.D. received the following comments from Professor Thijs Kuiken of Erasmus University :

*‘Very briefly, there are several viruses in dog faeces that are very similar to those in human beings, and potentially are infectious for them. Examples are norovirus, rotavirus, picornavirus, sapovirus^{11,12,13,14}. **Therefore, while it is rarely proven that these viruses have infected humans, it is asking for trouble to spread untreated dog faeces on the pasture, where people and grazing animals can come into contact with these viruses**’.* (Communication via email, February 3rd 2014).

3 Dog waste disposal practices on farms in Wales

3.1 It is very clear from analysis of licence reports produced by local authorities in Wales when licensing dog breeding premises that there is widespread variation in the methods used to dispose of dog waste and that very many dog breeding operations, particularly on farms, are doing so in ways that create significant risks. In Carmarthenshire, for example, which has the highest concentration of dog breeding establishments in Wales (81 licensed premises in 2013 ranging in size up to 196 breeding dogs) such reports show that for premises licensed in 2012/2013 the following methods of disposal were described :

Table 1. Reported methods of dog waste disposal amongst Carmarthenshire licensed dog breeders in 2013.

Percentage of dog breeding premises (number of premises)	Method of dog waste disposal reported by licensing official
11% (9)	'Approved disposal' (including 2 premises using an incinerator, 3 using a waste plant, 3 using approved trade waste disposal), 1 using a composting dog toilet.
2.5% (2)	'Bagged'
2.5% (2)	'Burned'
5%.(4)	'Cesspit' (1 recorded as 'advised' re proper waste management)
8.5% (7)	'Compost' (2 recorded as 'advised' re proper waste management)
8.5% (7)	'Farm waste' (2 recorded as 'advised' re proper waste management)
1.25% (1)	'Mains sewage'
16% (13)	'Muck/dung heap' (5 recorded as 'advised' re proper waste management)
4% (3)	'Septic tank' (1 recorded as 'advised' about proper waste management)
10% (8)	'Slurry pit' (4 recorded as 'advised' about proper waste management)
1.25% (1)	'Tip'
11% (9)	No information recorded about dog waste disposal

* Percentages do not add precisely to 100% because of rounding error.

3.2 It is apparent from Table 1 that the majority of licensed breeders in Carmarthenshire are using methods of dog waste disposal that may create disease risk. This is likely particularly to be the case where waste placed on 'heaps', in 'compost' etc is subsequently distributed on pasture land, or where there is poor management of run off for example from slurry pits or 'heaps' exposed to rain and so on. It is further evident that there is incomplete information recorded by the authority on waste disposal method used, and that advice concerning this, where likely to be pertinent, is only recorded as

having been provided in a minority of cases. Details of the specific advice given and its appropriateness is not recorded. (These details are unlikely to be unique to Carmarthenshire and the figures are given as an illustration).

3.3 C.A.R.I.A.D. has received a number of reports from near neighbours or visitors to farms which have dog breeding operations which have observed spreading over a sustained period of dog faeces on pasture land. While in some cases report to authorities has resulted in on-site visits and change in disposal practice, C.A.R.I.A.D. has also received reports of failure to monitor and continued spreading of faeces on pasture or placing of faeces on dung heaps etc. Where 'advice' has been given, the information obtained from analysis of licence reports does not convey whether this is pursued and followed up by the authority.

3.4 Licence report analysis and reports provided indicate that poor dog waste management practice is occurring on many large and very large dog breeding premises situated on farms in Wales. These include, for example, premises with over 50 breeding dogs that have been observed spreading waste to farmland, premises with over 100 breeding dogs using open slurry pits, premises with over 70 dogs using general compost, and a number with well over 50 breeding dogs for which the relevant authority has recorded no details about dog waste management practice.

3.5 Those dog breeding premises that apply to the local authority to be licensed and which therefore receive visits from local authority officials may be anticipated to be somewhat better regulated with respect to waste management than those which evade licensing. In Wales, in rural areas these are likely to represent a substantial number of premises².

4 Regulation – or the lack of it.

4.1 It has become apparent in investigating reports and observations of poor dog waste disposal on farms that there has been a lack of effective monitoring or enforcement with respect to the disposal of dog waste. Licensing officials when visiting to licence dog premises will focus primarily on the conditions under which dogs are kept and puppies are reared according to the relevant dog breeding regulation requirements. They may often not have specific training in or knowledge of waste management. Proformas used in licensing devote little or no space to waste management and do not ordinarily include advice on this.

4.2 C.A.R.I.A.D. understands that, in the last year, draft 'Guidance'¹⁵ has been developed by Natural Resources Wales that would bear on dog waste disposal. This guidance specifically states that a dog breeding establishment operator **must not** '*spread dog faeces/urine to land, mix dog faeces with agricultural manures and spread this to land, or allow this effluent to enter ditches, surface water, drains or land*'. However, it is not obvious that this has yet been disseminated or applied. Moreover, it is very unclear who has the responsibility for ensuring safe disposal of dog waste and who is prepared to take this on – particularly is it Natural Resources Wales or the local

authorities? Our own observation is that there is 'buck passing' occurring between local authorities and Natural Resources Wales, with the consequence that poor dog waste management practice continues and disease risks continue to be created.

5 Conclusions

5.1 Contamination of livestock by dog faeces has the potential to create significant disease risk in the U.K. most particularly in terms of neosporosis in cattle, sarcocystosis and echinococcosis in sheep, bacterial infections associated with gastro-intestinal disease (eg *Campylobacter*, *Cryptosporidium*), as well as potential viral infection. A number of these pathogens and parasites are also transmissible to humans.

5.2 There is persuasive evidence of widespread poor practice in the disposal of dog waste. This applies particularly and is of most concern to those operating dog breeding establishments on farm sites alongside the rearing of livestock, particularly sheep and cattle, in Wales.

5.3 Poor dog waste management practices are likely to have been occurring on farm sites in particular over a sustained period. It is highly likely, for example, that observed practice of spreading dog waste on pasture may have led to incidence of neosporosis leading to abortion not only on the farm site itself, but consequently to other farmers purchasing infected stock, which in the case of neosporosis may go on to produce heifer calves which themselves abort their offspring as adults.

5.4 There has been a clear failure by relevant authorities to properly monitor this, to provide clear and consistent advice or to enforce failure to implement proper dog waste management procedures. This failure continues and is compounded by apparent lack of clear responsibility between local authorities and Natural Resources Wales.

6 References

n.b. A large amount of information is available concerning zoonoses transmissible by dogs and disease risks that can be transferred to livestock on the European Commission CALLISTO project site. See particularly, the CALLISTO Strategy Report of the 1st Cycle. Available at :

<http://www.callistoproject.eu/joomla/index.php/2-general/79-callisto-strategy-report-of-the-1st-cycle-executive-summary>

1 C.A.R.I.A.D. (2013) Data obtained from Freedom of Information requests to 318 local authorities in England and Wales in 2013.

2 Welsh Government. Companion Animal Welfare Enhancement Scheme (2010) Special Projects 2010. All Wales Internet Trading of Companion Animals. CAWES – SP/0013.

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5 <http://www.capcvet.org/about-capc/>

6 McPherson, C.N.L., Meslin, F.X., Wandeler A.I. (Eds.). (2003) *Dogs, zoonoses and public health*. CABI Publishing.

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15 Natural Resources Wales. Waste – a guide for commercial dog breeding practices. (This appears to have been published in draft but is not currently available on the Natural Resources Wales web-site).