

GLAS and Knowledge Transfer Training

2017-2019

Rodent Pest Control on Farms – Responsible Use of Rodenticides

**Dr Mark R Lynch,
Chairman, CRRU Ireland**



Rodent Pests: Contamination and Fouling



- **Food and feedstuffs and environment contaminated with faeces, urine and hair**
- **Small infestation of 10 rats produces ~146,000 droppings and ~54 litres of urine in a year**
- **Increases in infestation levels produces much more contamination**



Rodent Pests: Damage to Property



- **Rodents can damage a wide range of materials**
- **Damage to insulation materials, power cables etc.**
- **Cause fire risk on farms and in buildings**



Disease organisms present in Norway rats

Disease Agent	Disease of Man/Animals	% infected/infested rats
<u>Ectoparasites</u>		
Fleas	-	100
Mites	-	67
Lice	-	38
<u>Helminths</u>		
<i>Capillaria</i> spp	Capillariasis	23
<i>Hymenolepis diminuta</i>	Rodent tapeworm	22
<i>Toxocara cati</i>	Toxocariasis	15
<i>Hymenolepis nana</i>	Rodent/human tapeworm	11
<u>Rickettsia</u>		
<i>Coxiella burnetti</i>	Q fever	34

Disease organisms present in Norway rats (2)

Disease Agent	Disease of Man	% rats carrying disease
<u>Bacteria</u>		
<i>Leptospira</i> spp	Weil's disease	14
<i>Listeria</i> spp	Listeriosis	11
<i>Yersinia enterocolitica</i>	Yersiniosis	11
<i>Pasteurella</i> spp	Pasteurellosis	6
<i>Pseudomonas</i> spp	several pathologies	4
<u>Protozoa</u>		
<i>Cryptosporidium parvum</i>	Cryptosporidiosis	63
<i>Toxoplasma gondii</i>	Toxoplasmosis	35
<u>Viruses</u>		
Hanta virus	Hantaan-fever	4

Regulatory Response – Main Provisions

- **The Rats and Mice (Destruction) Act 1919**
- **The Waste management Act, 1996**
- **Regulation (EC) No 852/2004 on the hygiene of foodstuffs**
- **The Health and Safety at Work Act, 1975**
- **Regulation (EU) No 334/2014 amending Regulation (EU) No. 528/2012**
- **Regulation (EU) No. 528 concerning the making available on the market and use of biocidal products**
- **S.I. No 427 of 2013 European (Biocidal Products) Regulations 2013**



Rodenticide use

- **Rodenticides are used in Agriculture**
 - 80-90% of arable & pastoral farms in and around buildings
 - to protect animal production and poultry units
- **Rodenticides are used in urban, semi-urban and rural settings**
 - To protect office buildings, Food and Feedstuff premises, Pharmaceutical plants, IT factories, Warehouses, Sports and other premises
 - In open areas, waste dumps and sewers
- **Large use of second-generation compounds**
 - Flocoumafen and brodifacoum most widely used
 - Difenacoum, bromadiolone and difethialone also used



Rodent Control – an Integrated Pest Management (IPM) Approach



- **An integrated approach is essential**
- **Rodent control, by the use of traps, biological means (cats or dogs) or rodenticide bait, will not last long unless other measures are also taken**
- **Important measures in an integrated approach are:**
 - ✓ Rodent proofing, to deny access to sensitive areas
 - ✓ Habitat modification, to deny food, water & shelter
 - ✓ Rodent killing – anticoagulants should achieve control within 35 days at most



Integrated Rodent Pest Management (IPM)



- **Exclude Entry**
- **Restrict access to Food and Water**
- **Survey and Map**
- **Destroy (Risk Hierarchy) – use method with least risk for workers and environment that is effective**
- **Review outcome**
- **Clean-up (harbourage)**
- **Monitor for re-infestation**



Poisoning of Animals - Definitions



- **Primary poisoning**
 - **Non-target animal consumes bait directly**



- **Secondary poisoning**
 - **Non-target animal consumes another animal which has itself consumed bait**



Wild small mammals and pest rodents as prey of Barn owls

- **Barn Owl numbers declined dramatically over past 40 yrs - a Red-listed Bird of Conservation Concern**
- **Decline ascribed to intensification:**
 - loss of small scale tillage,
 - switch from hay to silage,
 - removal of hedgerows.
- **> 85% of carcasses (2007-2011) had detectable traces of rodenticides (Birdwatch Ireland)**
- **Not known if residual traces present were:**
 - cause of fatalities, or
 - co-incidental to fatalities

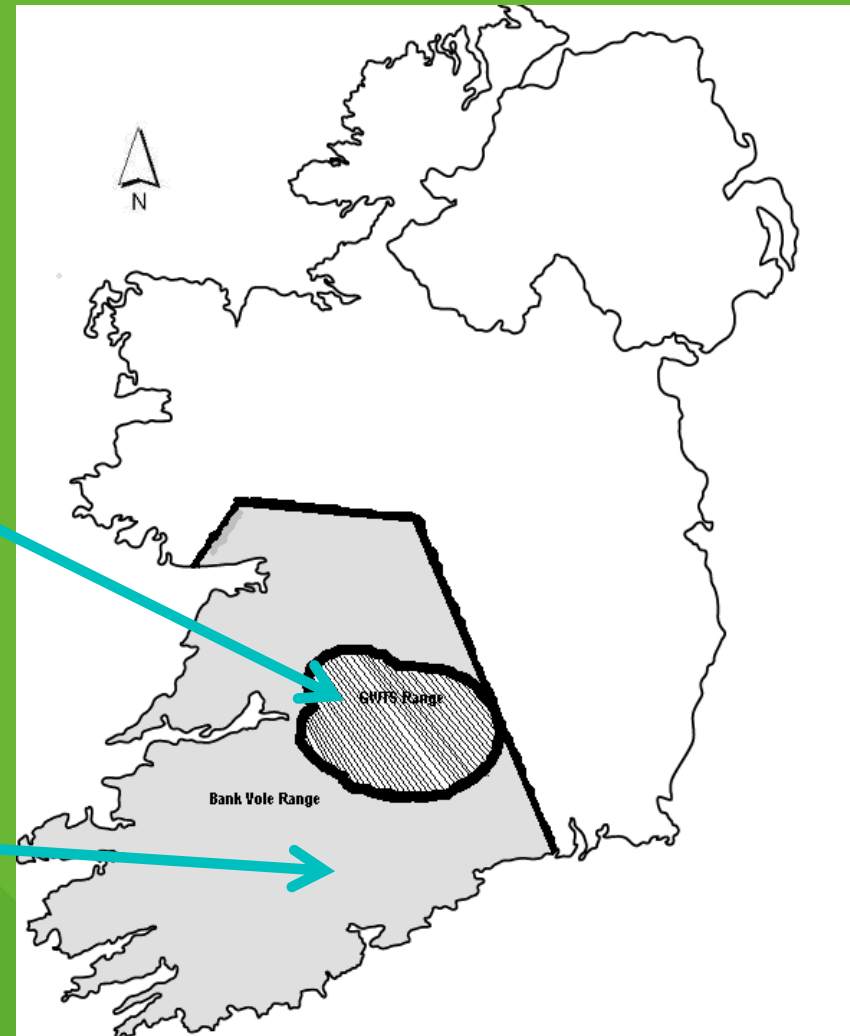
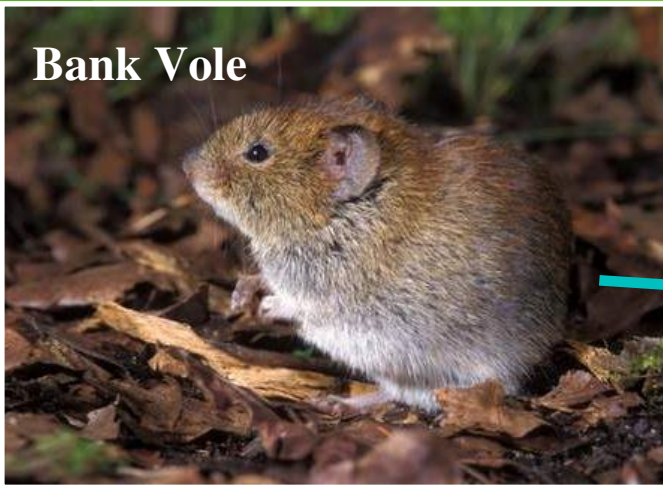


Wild small mammals and pest rodents as prey of Barn owls

Greater White-toothed Shrew



Bank Vole



Map shows current estimated distribution of introduced small mammal species – range continually increasing

Wild small mammals and pest rodents as prey of Red Kites

- **Wide and varied diet**

- small mammals, birds, young hares & rabbits
- Carrion (including dead rats)
- earthworms

- **Re-introduction Programme**

- Golden Eagle Trust & National Parks & Wildlife Service
- Release site selection: avoid release in areas with business / industrial parks



Other Raptor Species that prey on small mammals and pest rodents

Buzzard



Hen Harrier



Long-eared Owl

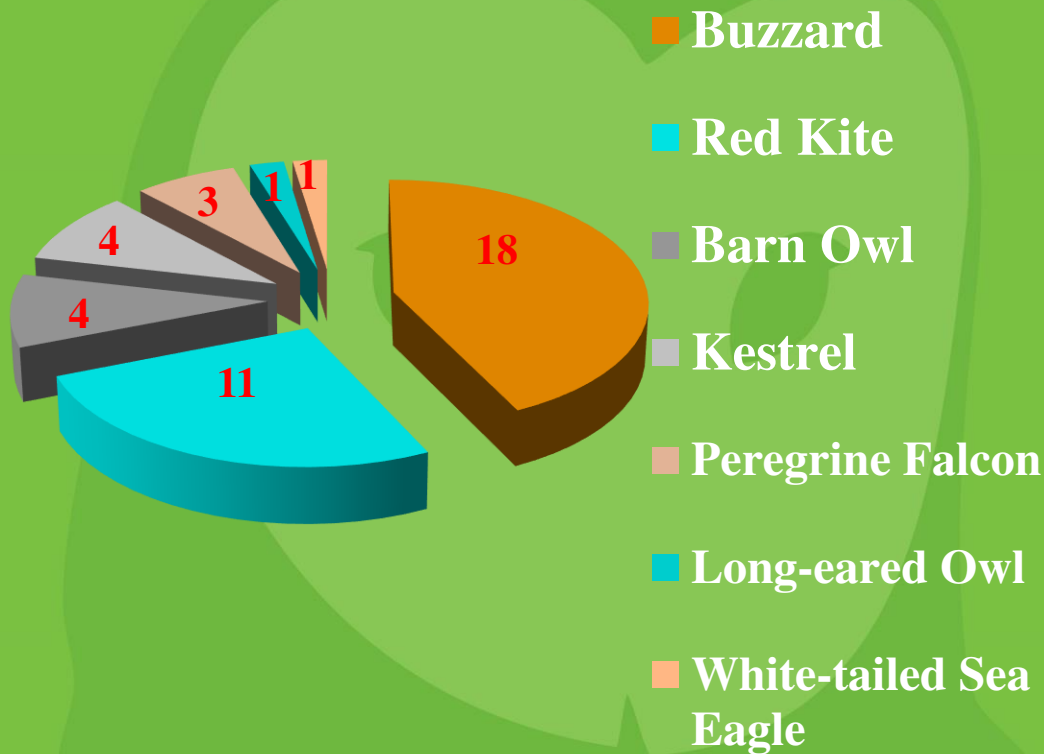


Kestrel

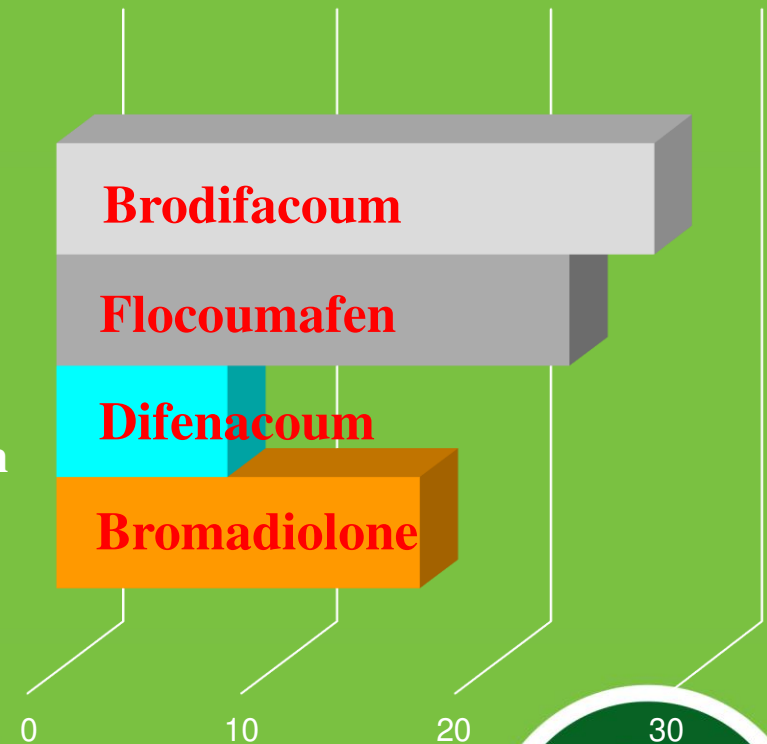


The Irish Situation: Incidents 2007-2015 – species & rodenticides involved

NPWS Incidents 2007-2015



Rodenticides Involved



These 42 incidents reflect poor rodenticide practice *i.e.* failure to abide by Best Practice



Campaign for Responsible Rodenticide Use Ireland (CRRU Ireland)

**CRRU aims to protect wildlife
while promoting and providing effective
rodent control through the responsible use
of rodenticides**



The CRRU Code

- **ALWAYS:**

- have a planned approach
- record the quantity of bait used and where it is placed
- use enough baiting points
- collect and dispose of rodent bodies

- **NEVER:**

- leave bait exposed to non-target animals and birds
- fail to inspect bait regularly
- leave bait down at the end of the treatment



GLAS Farm Inspectors will Look for:

- Is there evidence of an infestation on site – droppings etc.?
- Have proofing of buildings been effectively done – after existing any infestation eliminated
- Has harbourage (rubbish vegetation near buildings been) been removed creating an open perimeter – after infestation eliminated
- Has access to food & water been restricted – after any infestation eliminated
- Is there a planned approach – site map & records?



GLAS Farm Inspectors will Look for (2):

- **Has an infestation continued for > 35 days – infestations should be controlled in 21 to 35 days at most**
- **Have only DAFM authorized products been used – check PCS Number**
- **Were Label instructions for use followed - site map & records?**
- **Is there a record of regular baiting point inspections & top-up – at least weekly**



GLAS Farm Inspectors will Look for (3):

- Have enough bait points been used – evidence of rodent activity where bait is not placed
- Is bait protected from children and non-target animals – after any infestation eliminated
- Have rodent carcasses been collected and disposed of during and at end of treatment - site map & records?
- Has bait been removed at end of treatment – site map & records?



GLAS Farm Inspectors will Look for (4):

- **On control of an infestation, were good housekeeping measures implemented? – proofing of building, removal of access to food & water, removal of harbourage?**
- **Are Natural predators (farm cats, dogs, pine martens, owls) encouraged to take rodents? – keep background population in check**
- **Is a monitoring scheme in-place (placebo baiting) to check for re-infestation?**

Re-invasion is most likely to occur from neighbouring hedgerows and ditches

