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Proposed Hydatid trial – September 2010

Background:

- Hydatid level in sheep at very low levels – 1 +ve cyst found this season.
- Over the past 10 years – very low levels of cysts found.
- Regular worming with Droncit has continued since the mid 1970's
- Disease should have been eradicated by now.



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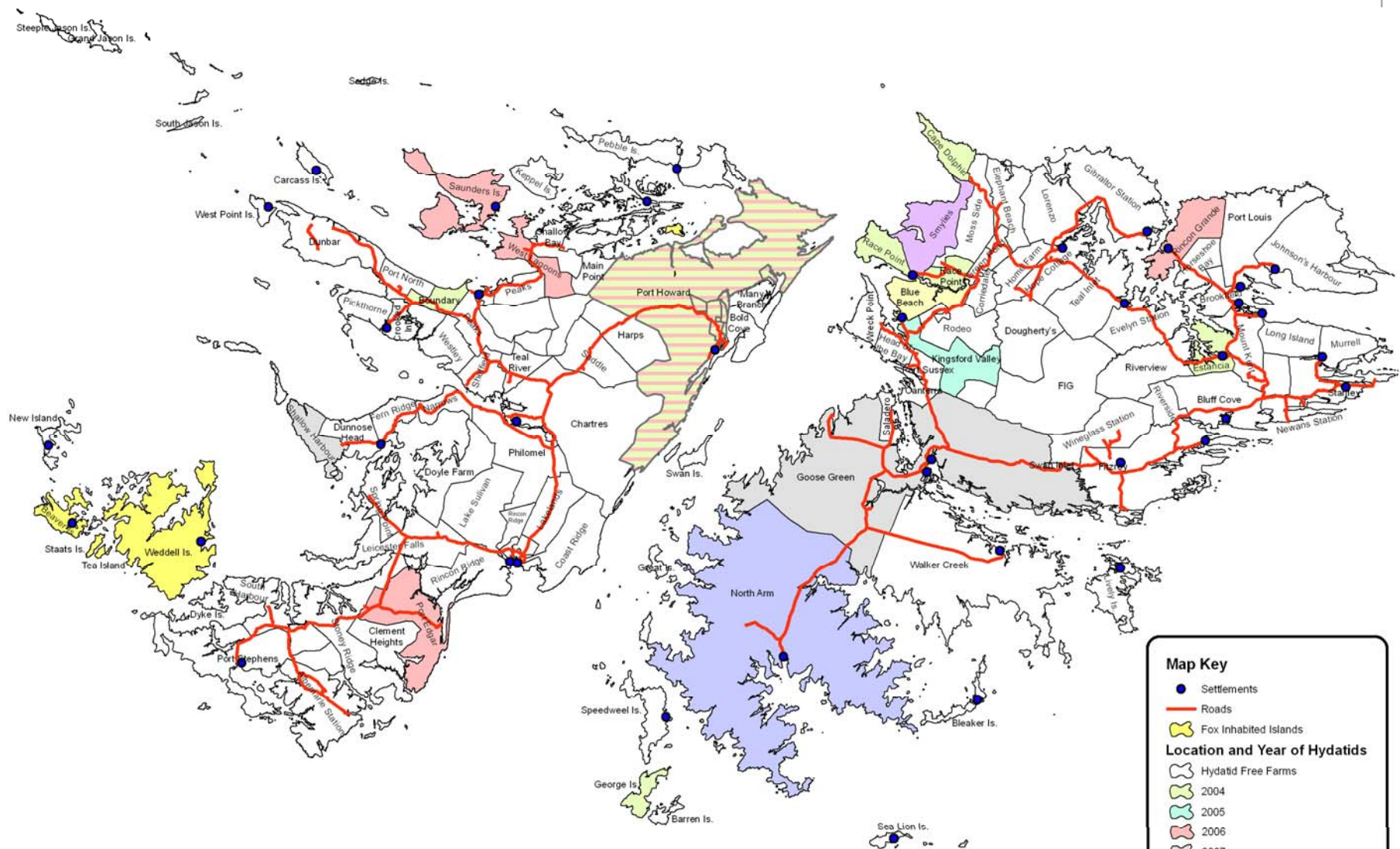


FARMS SUPPLYING SHEEP FOR SLAUGHTER - EXPORT SEASON

Year	2004	2005	2006	2007	2008	2009	2010
No Sheep	22,527	24,603	35,274	36,193	31,787	33,018	36,296
No Hydatid cysts	4	1	5	3	1	1	1
No farms	42	37	46	59	55	56	53
% farms	48	42	52	67	62	64	60

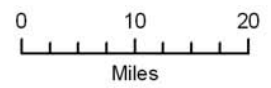
(stocked farms = 88)

Falkland Islands - Source of Hydatids Found in Sand Bay Abattoir 2004-2010

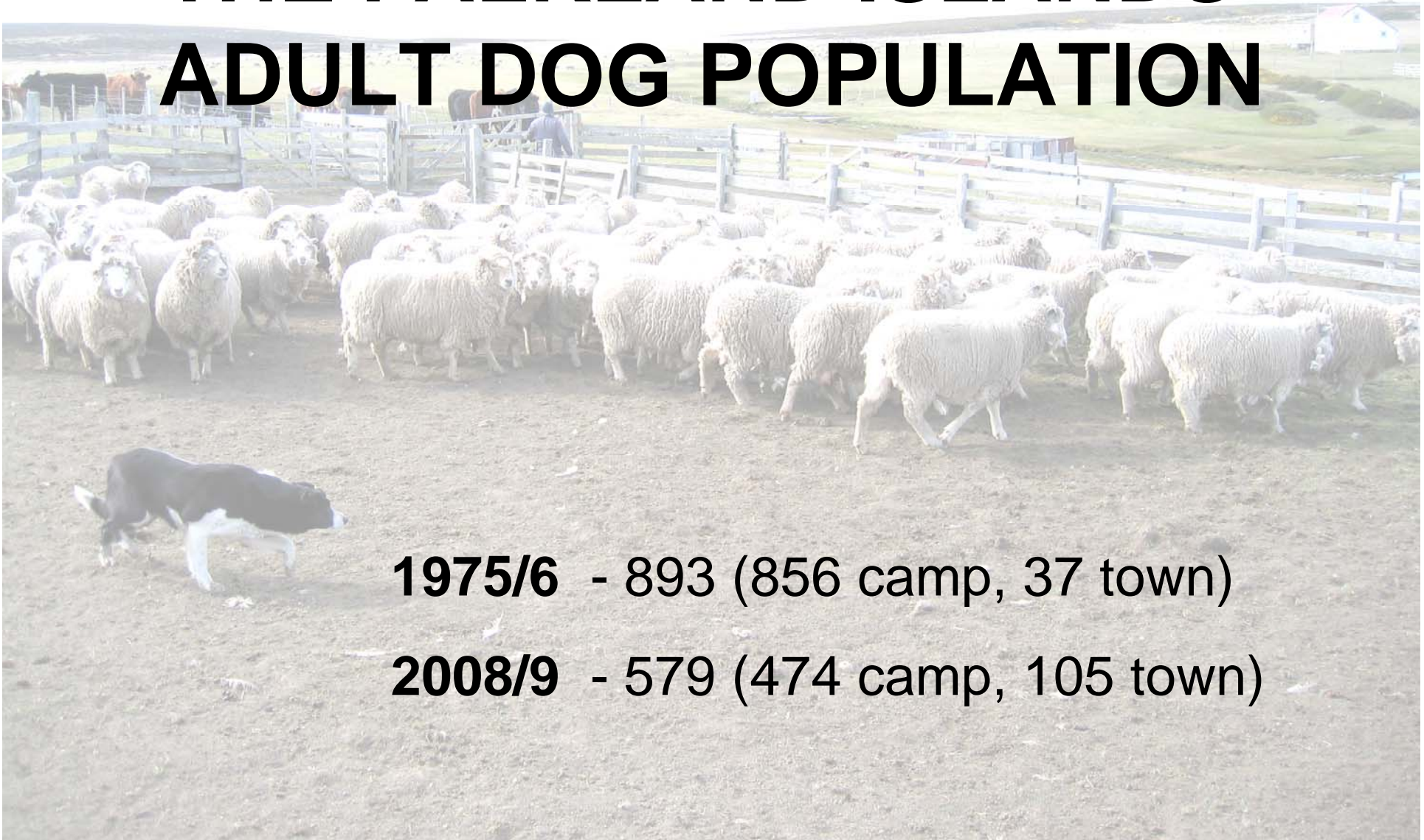


Map Key

- Settlements
- Roads
- ☒ Fox Inhabited Islands
- Location and Year of Hydatids**
- ☒ Hydatid Free Farms
- ☒ 2004
- ☒ 2005
- ☒ 2006
- ☒ 2007
- ☒ 2008
- ☒ 2009
- ☒ 2010



THE FALKLAND ISLANDS' ADULT DOG POPULATION



1975/6 - 893 (856 camp, 37 town)

2008/9 - 579 (474 camp, 105 town)

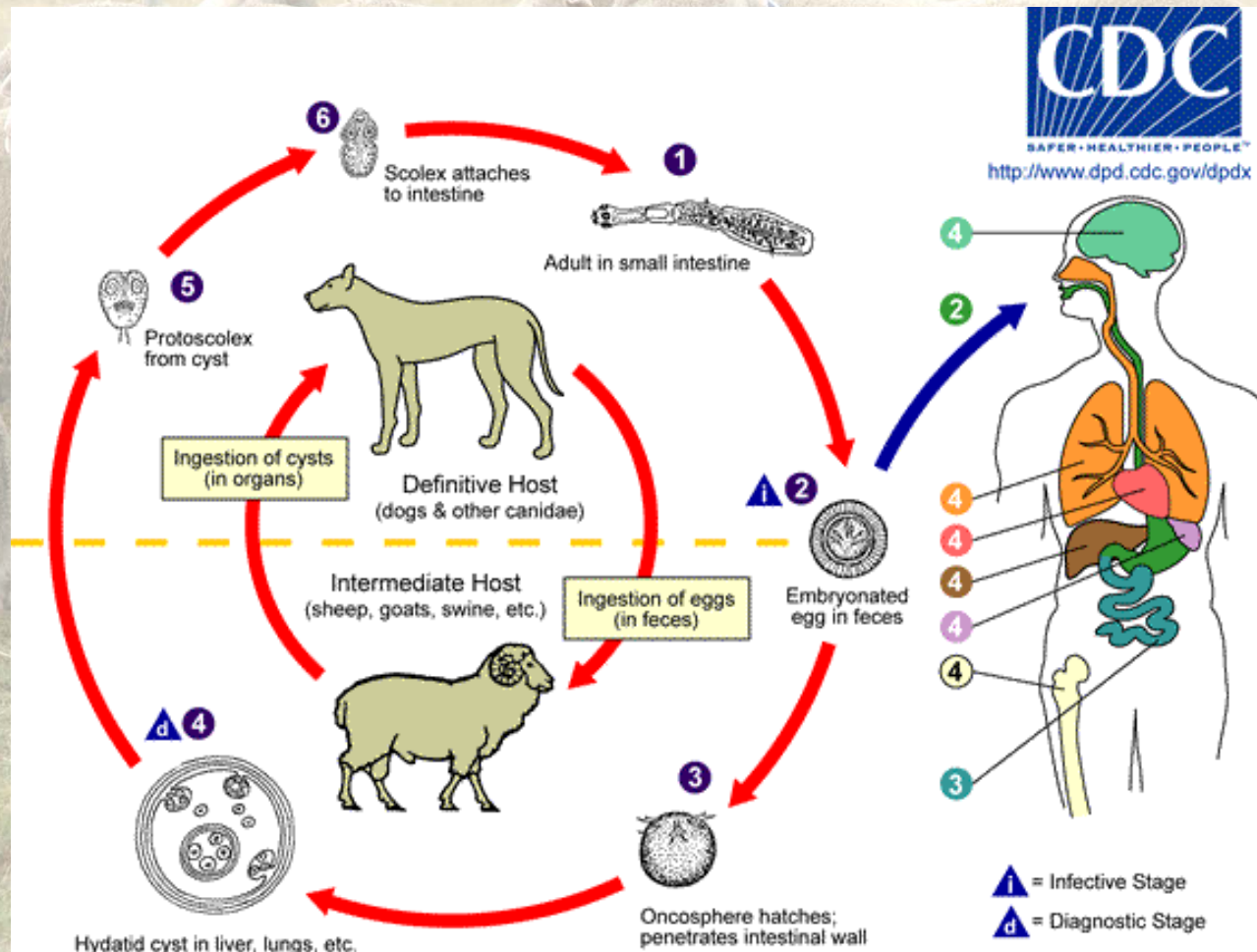


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ECHINOCOCCUS GRANULOSUS **LIFE CYCLE**



Key:

- (1) adult worms in intestines of definitive host.
- (2) eggs passed in faeces, ingested by humans or intermediate host.
- (3) oncosphere penetrates intestinal wall, carried via blood vessels to lodge in organs.
- (4) hydatid cysts develop in liver, lungs, brain, heart & bone.
- (5) protoscolices (hydatid sand) ingested by definitive host.
- (6) attach to small intestine and grow to adult worm.

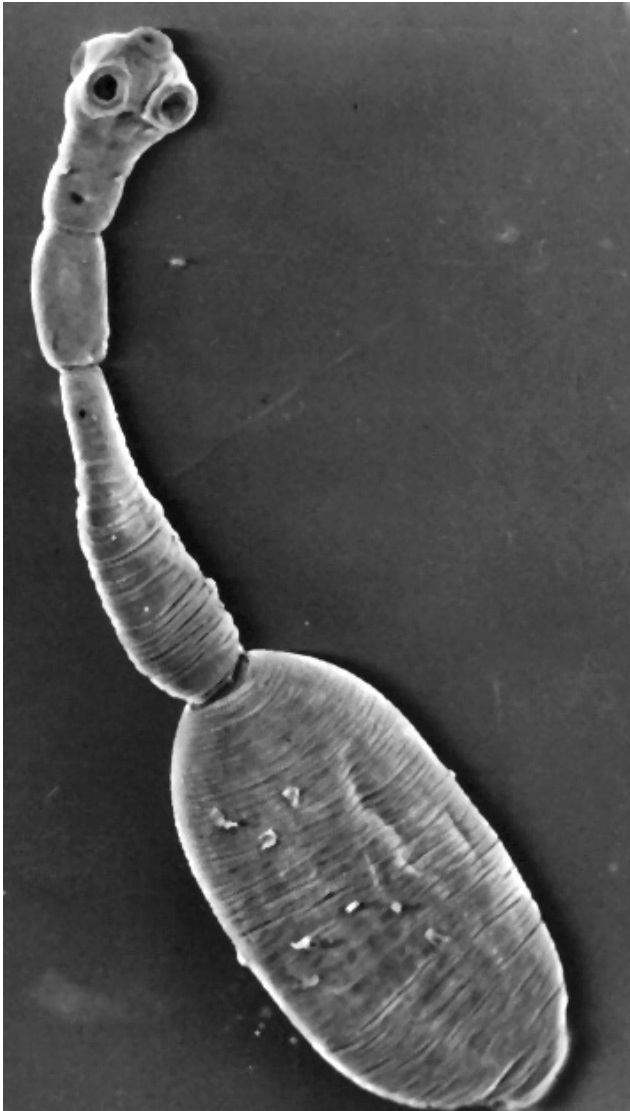


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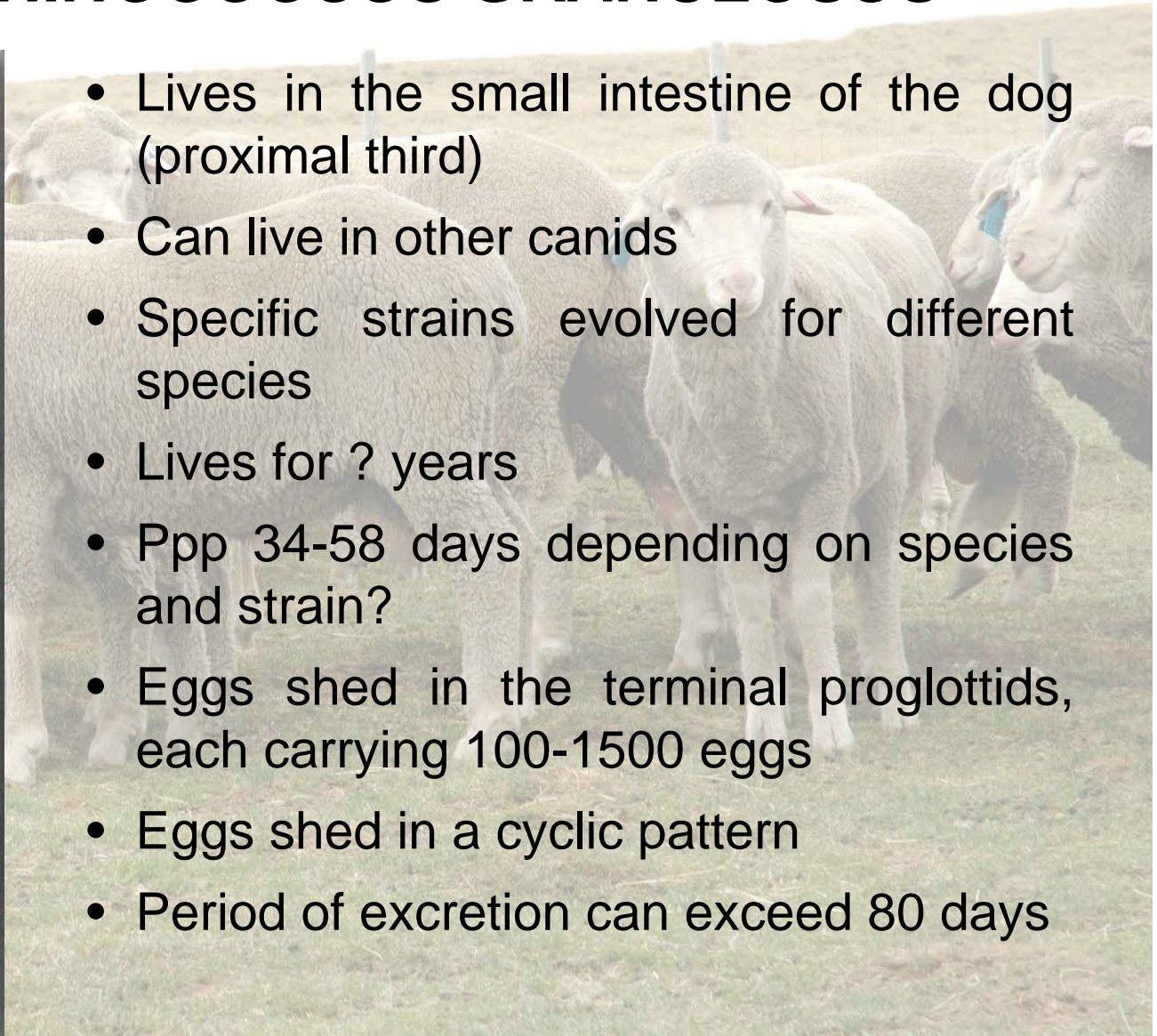
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ADULT *ECHINOCOCCUS GRANULOSUS*



- Lives in the small intestine of the dog (proximal third)
- Can live in other canids
- Specific strains evolved for different species
- Lives for ? years
- Ppp 34-58 days depending on species and strain?
- Eggs shed in the terminal proglottids, each carrying 100-1500 eggs
- Eggs shed in a cyclic pattern
- Period of excretion can exceed 80 days





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SUMMARY

- Egg produced in dog - survival 200 days (+/-)
- Cyst in livers - survival 1 hour to 55 days (+/-)
- Dog has to eat protoscolices to continue the cycle
- Protoscolices become adults and produce eggs in the dog in about 53 days (ppp)
- Sheep has to eat eggs to continue the cycle



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HISTORY OF HYDATIDOSIS IN THE FALKLAND ISLANDS

- 1935 (approx) *Echinococcus* introduced
- 1941 Hydatids found (Gibbs)
- 1954 Hydatids common (Ajax Bay abattoir)
- 1963 First human case
- 1965 -1975 11 human cases
- 1977 Eradication commenced seriously (Gemmell consultancy)
 - 6 weekly treatment with praziquantel
 - Legislation for dog control and offal disposal
 - 1989 - 9 more human cases on blood testing
 - 1991 – Possible outbreak? (M. Reichel)
- Prevalence of hydatidosis in sheep:
1975 **30%** 1981 **4%** 1998 **0.08%** 2007 **0.008%**



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PRESENT FACTS

- **Adult worm killed every 6 weeks (praziquantel dosing)**
- **Oldest sheep in the Falklands: ? 11 years**
- **If commenced in 1977 + no new infections – last possible infected sheep dead by 1988**
- **Therefore should have been eradicated 20 years ago!!**



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Why look at farm dogs?

- Dog is the “definitive” host ie it is the host for the adult tapeworm.
- Has been looked at before (early 1990’s) – using a blood test but with equivocal results.
- As disease still appears to be with us how, why and where is it circulating?
- We only check a very small proportion of the national sheep flock – at PM inspection.



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Proposed trial (1)

- Worm as normal on Wed. 14th July – Drontal
- DON'T worm at next dog dosing date – Wed 25th August
- Start collecting faeces samples from all farm dogs w/c Mon 30th August and throughout September.
- Complete all faeces collections by end of September.



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Proposed trial (2)

- All samples prepared in DoA lab and sent off to reference lab at University of Salford in early October.
- Resume normal dog dosing on Wed. 6th October – Droncit
- Await results of Copro-Antigen test from UK lab. Results should take about 1 month to come through after receipt of samples.



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The Coproantigen ELISA test

- This test is looking for antigens to the hydatid tapeworm in the dog faeces.
- In the same way as we produce antigens to various viruses and bacteria we can also product antigens to worms in our bodies.



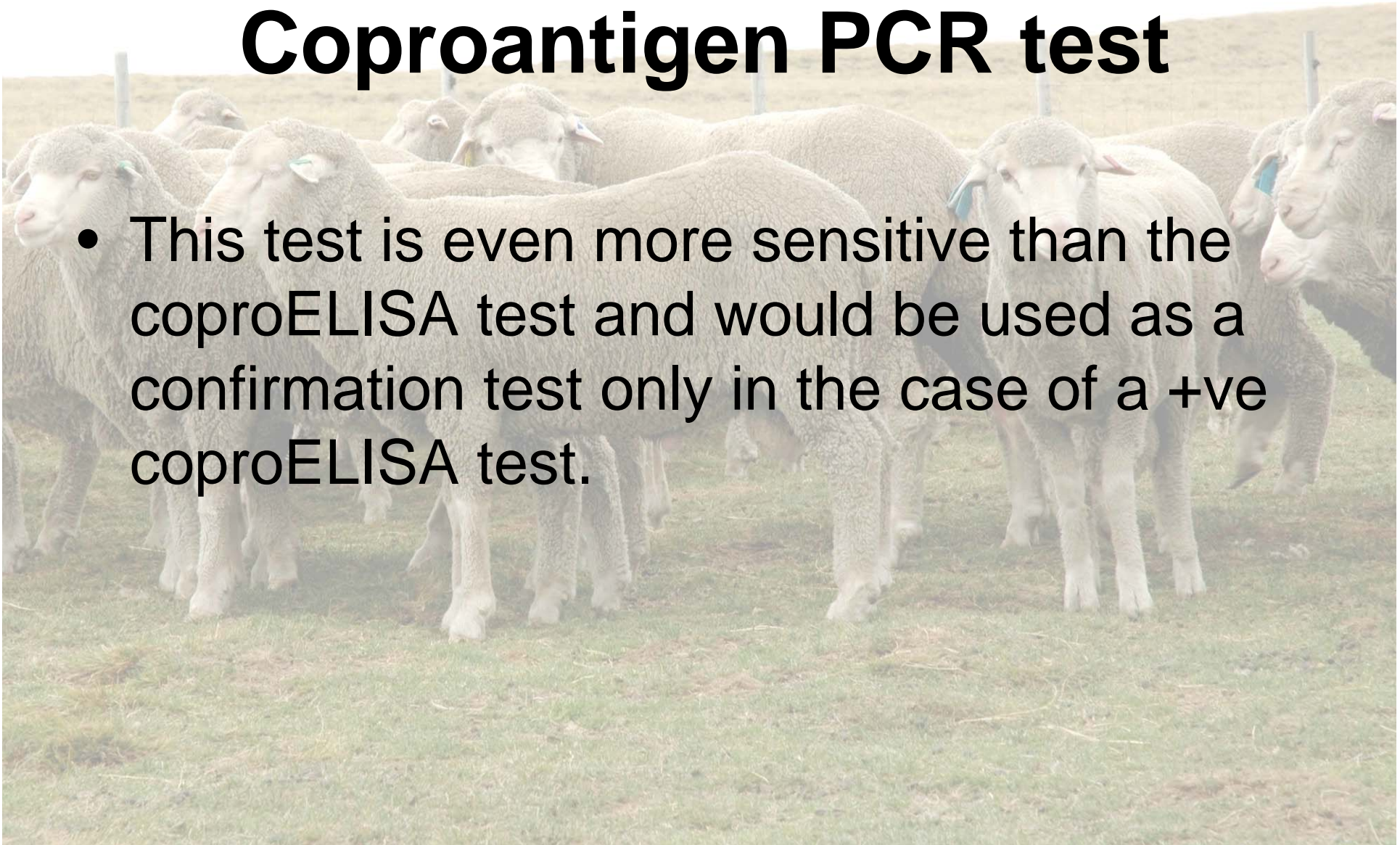
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Coproantigen PCR test

- This test is even more sensitive than the coproELISA test and would be used as a confirmation test only in the case of a +ve coproELISA test.





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What will we do with the results?

(1)

1. If there are any +ve faecal samples we will follow up on them on the farm of origin – ask questions, supervise next dog dosing, check that dosing procedures are adequate eg are doses correct for body weights (variation throughout year), take further faeces samples etc.



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What will we do with the results?

(2)

2. If all the results are –ve – take another look at whether dog dosing really needs to continue in its present form. What are the possibilities?
 - Continue dosing as we now are.
 - Reduce the frequency of dog dosing – down to quarterly or half yearly for a period of time and check to see if there are any consequences.
 - Stop dog dosing altogether and continue to monitor sheep at abattoir.