



# The effect of freezing on the viability of *Taenia ovis* cysts

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### THE EFFECT OF FREEZING ON THE VIABILITY OF *TAENIA OVIS* CYSTS

Sir — To determine the effects of freezing *Taenia ovis* cysts, a number of apparently viable cysts were obtained from several freezing works throughout New Zealand. They were sent fresh to Wallaceville by the quickest means but some were up to 5 days in transit and some arrived showing signs of putrefaction. On arrival, the cysts were either processed immediately or held for a period at + 4° C and then processed.

Some of the cysts which were to serve as controls and others which were to provide additional information on survival times in unfrozen meat, were dissected out of the pericyst and incubated for 1 to 2 hours in physiological saline to which had been added 10% of sheep or ox bile. The criterion of viability was obvious movement and this was usually accompanied by partial or complete evagination of the scolex. Specimens selected for freezing were trimmed to leave about 1 g of tissue and then placed in a refrigerator in petri dishes or small screw-capped bottles. After removal they were allowed to thaw at room temperature, dissected out and incubated in bile saline. All cysts for which slaughter dates were known were processed within 5 days of slaughter and it was assumed that the 12% of cysts for which no dates of slaughter were available, were of a similar age.

The results are shown in Tables 1 and 2.

TABLE 1: SURVIVAL OF CONTROL CYSTS HELD AT + 4° C AFTER ARRIVAL AT THE LABORATORY

<i>Time of Slaughter to Examination</i>	<i>No. of Cysts Dead</i>	<i>No. of Cysts Alive</i>
Not known	10	15
0-5 days	44	64
6-10 days	4	8
11-15 days	3	3
21 days	6	5
36 days	4	0

TABLE 2: VIABILITY OF CYSTS AFTER FREEZING

<i>Temperatures and Times in Refrigerator</i>	<i>No. of Cysts Dead</i>	<i>No. of Cysts Alive</i>
+ 4° C, 0-5 days (controls)	54	79
— 10° C, 1 hr	1	6
— 10° C, 2 hr	18	0
— 10° C, 4 hr	146	1
— 10° C, 24 hr	87	0
— 15° C, 1 hr	14	0

The results indicate that at chilling temperatures some cysts may live for at least 21 days but that freezing, even for short periods of time, is lethal. However, it must be emphasized that, for carcasses, additional time must be allowed for the freezing of deep muscles. The time required will depend on the size of the carcass, the spacing in the freezer, and air movement, as well as the temperature setting.

In practice, a recommendation of 7 days at — 10° C should provide an adequate margin of safety.

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