

## B3 Commercial collection of fetal bovine serum

(adopted 30/03/2016)

### 1 Introduction

1.1 This position paper must be read in conjunction with the following RSPCA policies:

[Policy B Farm animals](#)

[Policy D Research animals](#)

[Policy F Transportation of animals](#)

[Policy G Humane killing](#)

1.2 For the purpose of this position paper, the commercial collection of fetal bovine serum refers to the collection of blood from fetal calves at abattoirs for the commercial production of blood serum. Because the blood of unborn calves has only been exposed to its mother's blood coming to it across the placenta, fetal blood is free of micro-organisms and this gives the fetal calf its commercial value.

*Fetal bovine serum is a biological product obtained from the blood of fetal calves. Serum is the component of blood left after the red blood cells have been removed (the blood is allowed to clot, the tubes are centrifuged and the serum is pipetted off). Because fetal bovine serum promotes cell growth and cell proliferation, it has many applications including as an additive in growth media for cell and tissue culture, as an additive in specific diluting agents, in the production of vaccines, or as a stabiliser in some protein binders to name a few.*

1.3 This position paper sets out principles that underpin the humane collection of blood from fetal calves.

1.4 RSPCA advocates the use of non-animal derived alternatives to the use of fetal bovine serum. Where synthetic serum or another non-animal derived alternative exist, these must be used rather than the animal-derived product.

*RSPCA strongly supports the ethical and humane research principles of replacement, reduction and refinement: replacement of the use of animals with alternative techniques, reduction in the number of animals used, and refinement of procedures to improve the welfare of animals in research.*

1.5 On-farm blood collection from perinatal conscious calves - as distinct from collection at abattoirs as described in this position paper - has a significant welfare risk and must not be undertaken.

### 2 Conditions

2.1 Fetal bovine serum collection must only be carried out where the welfare of the fetus is safeguarded by ensuring it is dead at the time of blood collection.

2.2 Fetal bovine serum must only be collected at licensed export abattoirs unless domestic abattoirs are able to demonstrate equivalent animal welfare standards.

*Animal welfare at export abattoirs is managed and monitored through the export meat industry's animal welfare standards and compliance system; there is a requirement for training and competency assessment; and there is a veterinarian in attendance. These factors combined present the basis from which the collection of fetal bovine serum can be carried out humanely.*

- 2.3 The abattoir collecting fetal bovine serum must be specifically licensed for this activity by the regulating authority.
- 2.4 Fetal bovine serum collection must be overseen by the abattoir's accredited veterinarian who must also be familiar with the procedure.
- 2.5 The number of fetal calves used for the collection of fetal bovine serum must be recorded by the abattoir and provided to the regulating authority. The regulating authority must publish annual statistics indicating the total number of fetal calves used for fetal bovine serum collection.

### **3 Training and competency**

- 3.1 Fetal bovine serum collection must be carried out by a competent operator trained in the technique. The operator must also be trained and competent to carry out euthanasia of the fetal calf.
- 3.2 Operator training must be conducted by a recognised training organisation.
- 3.3 Records of staff training must be maintained and staff must be regularly assessed to ensure on-going competency and timely identification of training needs. If the blood collection operator is employed by the fetal bovine serum manufacturer, the abattoir's veterinarian must be provided with current documentary evidence to demonstrate operator competence before blood collection commences.
- 3.4 Written procedures describing euthanasia of the fetal calf and the blood collection technique must be in place at the abattoir.
- 3.5 Equipment for carrying out the collection procedure and equipment for euthanasing calves must be fully operational and be cleaned, maintained, operated and stored in accordance with manufacturer's instructions. Back-up euthanasia equipment must be available and fully operational.
- 3.6 A Closed Circuit Television system must be installed and operational at all times to allow a clear view of the procedure taking place and to ensure the correct technique is maintained.

### **4 Procedure**

- 4.1 The fetal calf's dam must be slaughtered humanely ensuring instant death or immediate unconsciousness and insensibility to pain until death is confirmed.
- 4.2 At evisceration of the dam, the uterus must be carefully removed to ensure it remains intact. The fetal calf must not be removed from the uterus (either in its

entirety or partly exposed) until at least 30 minutes after bleeding out of the dam has commenced.

*At this point, the dam is dead and lack of oxygen supply to the fetus will mean that the fetal calf is highly likely to be dead as well. At this stage, a live fetal calf will have flattened brain activity although a heartbeat, gasping and other movements may still occur.*

- 4.3 Following removal from the uterus, the fetal calf must be checked to ensure it is dead, evidenced by lack of corneal reflex, dilated pupils, absence of rhythmic breathing, limp tongue and limp jaw, and absence of heartbeat.
- 4.4 Acceptable methods of collecting blood from the dead fetal calf are by insertion of a syringe needle between the fourth and fifth ribs into the fetal heart or through bleeding of the umbilical cord.

## **5 Euthanasia**

- 5.1 In the event that a live fetal calf is removed from the uterus, it must be immediately euthanased by a competent operator using a captive bolt gun in the frontal position.

*Consciousness, or awareness, and thus suffering of the fetus are related to brain activity which, in turn, is related to blood oxygen supply. Although the fetus may respond to touch by moving, it is not capable of suffering or feeling pain because of the low blood oxygen level in the uterus that maintains unconsciousness. The fetus must be prevented from inflating its lungs and breathing air at any stage after entire or part removal from the uterus and thus becoming conscious. If the fetus can inflate its lungs and breathe, blood oxygen levels will rise, the brain will be provided with oxygen, and the calf will become conscious and have the capacity to suffer.*

- 5.2 Following captive bolt use, the fetal calf must be checked to ensure it is dead, evidenced by lack of corneal reflex, dilated pupils, absence of rhythmic breathing, limp tongue, limp jaw and absence of heartbeat.
- 5.3 Fetal calves found alive at evisceration of the dam and not destined for blood collection must not be revived but euthanased. The calf must be checked to ensure it is dead.

*Serious welfare concerns may arise if fetal calves are revived including impaired brain function due to lack of oxygen, breathing difficulty and increased risk of infections due to fetal immaturity.*