

RUM_015 Venous Blood Collection in Cattle

I. OBJECTIVE

To describe the procedure for venous blood collection in cattle in order to perform this safely.

II. DEFINITIONS

Competent - “the consistent application of knowledge and skill to the standard of performance required regarding the care and use of animals. It embodies the ability to transfer and apply knowledge and skill to new situations and environments.” (as per, Australian code for the care and use of animals for scientific purposes, 2013)

III. COMMENTS / RECOMMENDATIONS

- Cattle must be restrained using appropriate methods, taking into account the animal’s temperament and the procedure being performed. A rear end kick gate should be used for tail vein blood collection while a head bale, and or halter should be used for jugular vein blood collection. Young calves may be manually restrained.
- As per routine the conditions (see document footer) this procedure must be performed by, or under the direct supervision of, personnel who are competent to perform the procedure.
- Needles are for individual use. If the sample is not collected on the first attempt, use a new needle must be used for each subsequent attempt and needles must not be reused between animals.
- No more than 3 attempts per vein (in any one session). E.g. if blood collection is unsuccessful after 3 attempts it is not acceptable to continue attempts at the same vein. Venepuncture may be attempted at other sites of that individual animal, however, if you find this to be a common occurrence then it is most likely that you are not competent in the procedure and retraining of your technique is required.
- This SOP has been written with methods related to the use of vacutainers, however, it may also be considered directly applicable to methods using needles and syringes.

IV. EQUIPMENT

- 18G vacutainer needle (smaller diameter needles are also acceptable)
- Vacutainer (size and type appropriate for the sample to be collected)
- Vacutainer holder
- Swab (or some form of clean cloth material)
- PPE (as appropriate for your procedure) – protective clothing, footwear and disposable gloves are all recommended, if required seek advise from a biosecurity personnel.

V. PROCEDURE

Coccygeal (Tail vein) Venepuncture

1. Restrain the animal as required in a cattle crush. Access to the tail is required either from the side of the crush (e.g. by opening a top panel only) or from behind (e.g. if a kick gate is present).
2. Raise tail with one hand. If the venepuncture site is visibly dirty clean the area with a swab (do not attempt to stick a sterile needle through faeces into the animal’s vein). Water may be used, allowing the area to dry before proceeding.
3. Locate space between third and fourth coccygeal vertebrae. The venepuncture site should be approximately midline within this space.

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4. Insert needle at an approximate 90° angle. The vein is quite shallow. Wait until a drop of blood comes from the needle (if the needle does not have a rubber backflow-guard).
5. Insert the vacutainer into the vacutainer holder, perforating the vacutainer's seal and collecting the blood sample. If multiple samples are required, the needle must be kept stable within the vein while this step is repeated with subsequent vacutainers.
If different types of vacutainers are being used (some of which contain an additive) always collect blood into the serum tubes first (i.e. those vacutainers that do not have an additive should always be used first – as transfer of additive can cause inaccuracies).
1. When finished, remove the vacutainer from the needle, before withdrawing the needle from the vein. Remove the needle from vein.
2. Apply digital pressure with a swab to the venepuncture site to assist blood clotting and reduce the risk of a hematoma developing.

Jugular Venepuncture

3. Using a head bale secure the head in an elevated position turned slightly to one side (the opposite side you intend to collect blood from). Usually, a halter and rope is also required.
4. If the venepuncture site is visibly dirty clean the area with a swab. Cleaning alcohol or water may be used, allowing the area to dry before proceeding.
5. Occlude jugular vein by applying pressure with your thumb at the thoracic groove.
6. Insert needle (connected to the vacutainer holder) with the bevel facing up at an angle $\leq 45^\circ$ to the surface of the occluded vein.
7. Insert the vacutainer into the vacutainer holder, perforating the vacutainer's seal and collecting the blood sample. If multiple samples are required, the needle must be kept stable within the vein while this step is repeated with subsequent vacutainers.
If different types of vacutainers are being used (some of which contain an additive) always collect blood into the serum tubes first (i.e. those vacutainers that do not have an additive should always be used first – as transfer of additive can cause inaccuracies).
8. When finished, remove the vacutainer from the needle, before withdrawing the needle from the vein. Remove your hand from applying occlusive pressure to the vein and then remove the needle from vein.
9. Apply digital pressure (with or without the swab) to the venepuncture site to assist blood clotting and reduce the risk of a hematoma developing.

Version #	Reviewing AEC (note: all other relevant AECs ratify the approval)	AEC Review Date	Approval To Date
2	PCA	16/03/2022	16/03/2025

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