Standard Operating Procedure
DNA Sampling

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Background:

Accurate **DNA collection** is critical to ensure the success of parentage verification of all progeny present at birth or tagging. This is especially important in Merino Sire Evaluation / AMSEA projects given the expense of DNA testing.

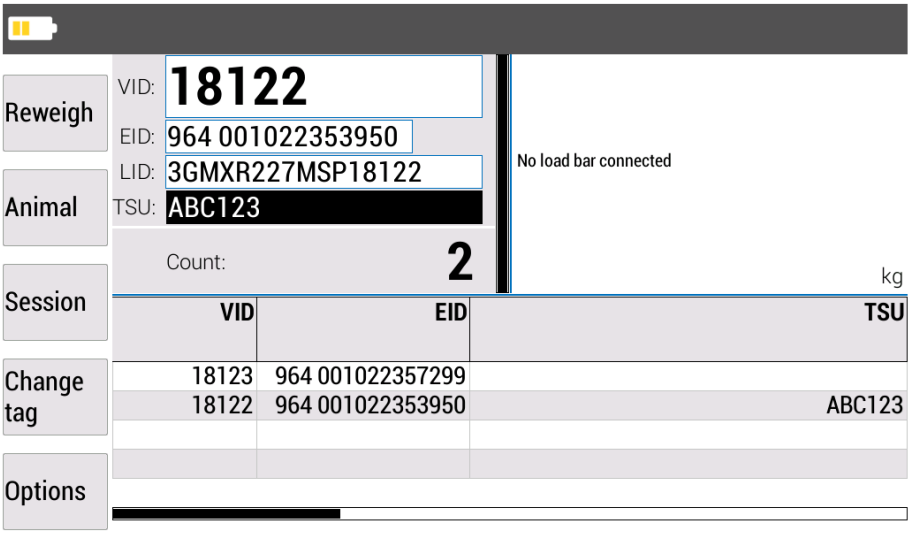
Equipment:

Trutest XR5000, 2D Barcode Scanner, RFID Reader, Allflex TSUs & Applicator, TSU Racks.

Set up of the XR5000 data recorder:

1. Setup trait **"TSU ID"** on the XR5000 as "Lifetime Data" / "Animal ID" this will prevent duplicates.
2. Start New Session which must include EID/ VID & TSU ID.
3. Connect Bluetooth Stick Reader & USB 2D barcode scanner with input assigned to TSU ID.
4. Avoid collecting other trait scores on the same XR5000, this will slow down the process and increase the chance errors.

Figure 1. Weigh Screen displaying the TSU as an "Animal ID" field:



Source: Davis S, Trutest

Tagging

1. Prior to the TSU sample being taken the lamb should be tagged with:
   1.1. Ear tag with Visual ID.
   1.2. Matching Ear tag with Electronic ID (From a Tag Bucket File).
   1.3. This should be done in the first position of the cradle.

TSU Collection

1. **Assign TWO people to this task, 2nd position on marking cradle, after tagging.**
   1.1. Person “A” should take the TSU sample from the ear of the lamb.
   1.2. Person “B” scans the EID tag into XR5000 data recorder using a RFID reader.
   1.3. “A” removes the TSU from applicator, disposes of cutter, check TISSUE sample is visible and TSU is sealed.
   1.4. Person “B” is handed the TSU from “A”.
   1.5. “B” scans the TSU 2D barcode, placing TSU in the correct position if the rack, starting at A1.
   1.6. “B” checks XR5000 screen for valid EID and TSU ID assigned to animal.
   1.7. It has been observed (rarely) the TSU ID is partially recorded. If required rescan the TSU ID.
   1.8. If the TSU is racked in order we can check the data entries if needed.
   1.9. “A” reloads the TSU applicator.
2. **Check the data is being recorded.**
   2.1. On the XR5000 after the first couple of lambs before they leave the cradle &
   2.2. Start RFID reader with a New Session to record date and time to match the date and time of the XR5000 session file.
3. **Number the TSU racks.**
   3.1. In the order samples are taken.
   3.2. If required, the TSU ID can be matched to the animal EID file recorded by the stick reader or the tag bucket file.
   3.3. Store samples in an esky / fridge prior to postage to BCS or Neogen.

Trouble shooting

1. If a miss-fire of the TSU occurs resample the animal and scan the new TSU. Discard the misfire.
2. If you sample an animal twice discard one of the samples. DNA testing is very expensive.
3. “This ID is already assigned to another animal” displays; check for signs of a TSU sample being taken.
4. If no sample taken then resample the animal.
5. If “This TSU ID is already assigned to another animal” check a new TSU was put in the applicator. Resample the animal with new TSU.
6. TSU is recorded but no animal EID. If the tagging order is maintained assign the missing animal ID from the Tag Bucket file. Flag the animal and resample at next opportunity!
7. If the samples are suspected to be out of place, scan the last TSU and it will bring up the animal ID that TSU ID belongs to. Check animals on the cradle to regain your place.
8. If an animal needs to be resampled use the “Change Tag” function on the XR5000
9. 2D scanner wont input TSU ID:
   9.1. Make sure the scanner is configured correctly- Use barcode “USB Keyboard” for the Datalogic QuickscanQD2430 model.
   9.2. Ensure the USB input is set to the TSU ID.

Youtube tutorial videos for set-up of XR5000 and TSU samples:

1 Setting up “TSU ID” trait in the XR5000
- Ensure TSU ID is “LIFE DATA” and is an “Animal ID”. https://www.youtu.be/HxSu1R12nAc

2 Connecting the 2D scanner on the XR5000
- Set USB input to “TSU ID”. https://youtu.be/7ttRwC7HWuE

3 Starting a New Session to collect TSU ID
- Check the data entries after the first couple of animals. https://www.youtu.be/fiJrEvJqjTw

4 Ensure the TSU plug is fully seated
- This will preserve the DNA sample and stop liquid leaking. https://youtu.be/VCE8_hQcjII