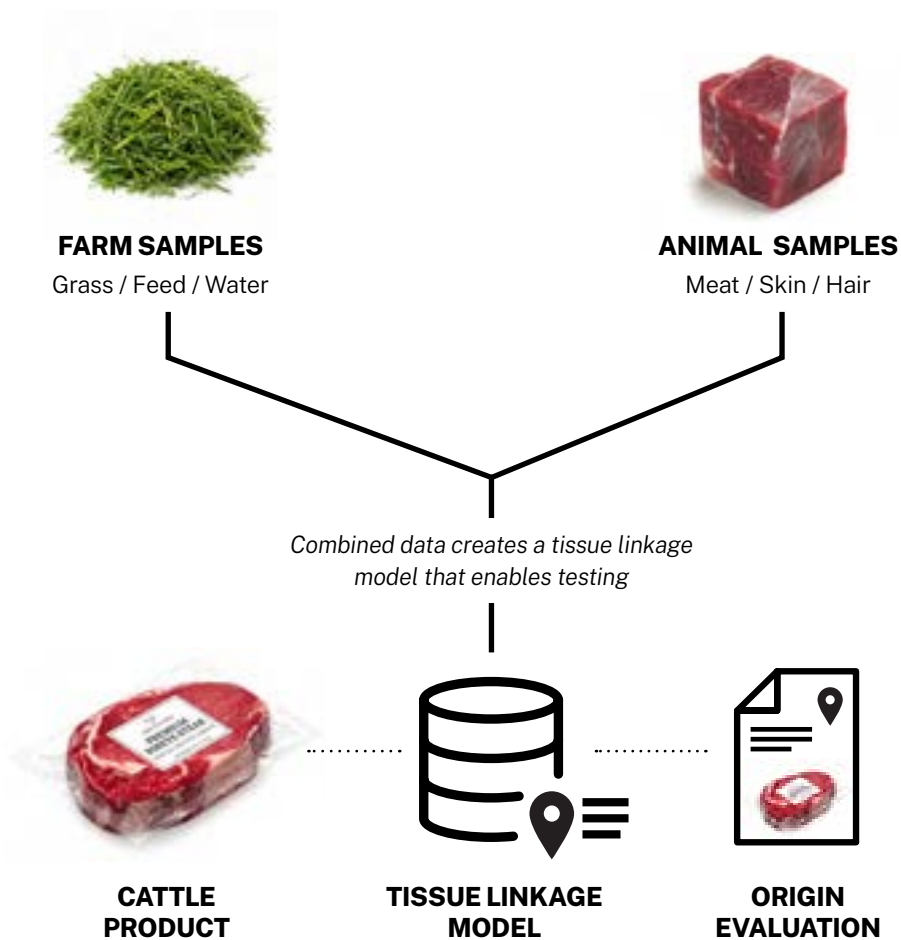




Collection guide for cattle (Phase 1)



IMPORTANT: Phase 1 builds a tissue linkage model by connecting grass, feed and water from each farm with hair, meat and skin from the same identified cattle. Every sample must be collected, labelled, recorded and stored correctly for this linkage to work.

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Basic collection protocols for Cattle

GENERAL REQUIREMENTS

1. Do not collect samples without written permission.
2. Install and register the World Forest ID app before collection.
3. Keep the GPS device on and carry backup power.
4. Photograph each labelled sample beside a GPS device showing the coordinates.
5. Use only the Unique ID labels supplied for your collection.
6. Sample only specified farms and cattle; collect 5 animals per farm.
7. Collect linked farm and animal samples within a few days of each other.
8. Follow all farm and abattoir safety procedures

SAMPLE SPECIFICATIONS

9. Water: Collect 200 ml per water source. Fill every vial completely.
10. Grass: Fill 3 C4 bags per grazing site, from points at least 5 m apart.
11. Grass: Treat each field, paddock or pasture as one grazing site.
12. Grass: Sample up to 3 grazing sites per farm.
13. Feed: Collect 2 full handfuls of each feed type currently given to the cattle.
14. Feed log: Photograph any available feed log or history
15. Tail hair: Comb the tail switch, then collect 25 of the longest hairs with roots intact.
16. Meat: Collect 50 g, approximately 3 × 3 × 5 cm.
17. Skin: Collect 30 g, approximately 5 × 5 cm. Trim visible fat and debris.
18. Collect meat from right longissimus thoracis at the 7th rib and skin directly above.

HANDLING AND STORAGE

19. Use a fresh blade or sanitise it between animals.
20. Freeze meat and skin as soon as possible after collection.
21. Keep grass, feed and tail hair dry.
22. Keep water refrigerated at 4°C and do not freeze.

Safety procedures

1. Enter farm and abattoir areas only when authorised.
2. Follow all site safety, hygiene and biosecurity rules.
3. Approach live cattle only with approval from a trained handler.
4. Wear suitable boots, clothing and required PPE.
5. Wear clean disposable gloves when handling animal samples.
6. Change gloves or sanitise them between animals.
7. Keep food and drink away from samples.
8. Carry a first-aid kit.



Image

Tools and equipment for collection

GENERAL EQUIPMENT

1. Android smartphone.
2. World Forest ID app installed.
3. Standalone GPS device.
4. Power bank or spare batteries.
5. Sufficient Unique ID labels for all samples.
6. Waterproof pen or marker.
7. Clean disposable gloves.
8. Suitable footwear and clothing.
9. Any required PPE, such as a hi-vis vest, and a first-aid kit.

FARM COLLECTION

10. Polypropylene water vials: enough to hold 200 ml per water source.
11. Clear plastic bag: 1 per water source, 200 × 250 mm or larger.
12. Brown paper bags for grass: 3 per grazing site, C4 / 230 × 320 mm or larger.
13. Brown paper bags for feed: 1 per feed type, C4 / 230 × 320 mm or larger.
14. Silica gel in pre-packed sachets or breathable teabags.

ABATTOIR COLLECTION

15. Clean pliers, forceps or tweezers for hair removal.
16. Clean wide-tooth comb to remove dead hairs.
17. Clean knife or scalpel with fresh blades for meat and skin.
18. Sanitiser for the comb, tools and blades.
19. A4 tissue paper and C4 envelope for tail hair.
20. Adhesive tape for securing wrapped tail hair.
21. Freezer-grade vacuum bags for meat, 200 × 250 mm or larger.
22. Freezer-grade vacuum bags for skin, 200 × 250 mm or larger.
23. Cool box with ice packs for meat and skin.
24. Freezer access at -18°C.

Farm sample specifications

WATER:

At each farm, collect 200 ml of water from each distinct water source used by the cattle. Sources may include wells, boreholes, rivers, streams, ponds, reservoirs, rainwater or mains-fed troughs. Use as many vials as needed to reach 200 ml and fill each one completely. Place all vials from one source in a single labelled bag. Store at 4°C. Do not freeze.



FEED:

At each farm, collect 2 full handfuls of each feed type currently available on the farm and given to the cattle. Photograph any available feed log. Take samples from a clean bag, bin or store. Place each feed type in a separate labelled brown paper bag. Keep samples dry.

PASTURE GRASS:

At each farm, collect 3 grass samples from each grazing site used by the cattle, at least 5 m apart. Fill one labelled C4 bag at each point without compressing the grass. Treat each separate field, paddock or managed pasture area as one grazing site. Sample a maximum of 3 grazing sites per farm. Keep samples dry.



Abattoir sample specifications

TAIL HAIR:

Use a clean comb to remove loose or dead hairs.

Collect 25 of the longest tail-switch hairs with roots intact. Keep the hairs aligned and roll them in tissue paper. Mark an arrow towards the tail end. Place in a labelled C4 envelope. Keep dry.



SKIN:

Collect 30 g of skin, approximately 5 × 5 cm, directly above the right longissimus thoracis at the 7th rib. Trim visible fat and debris. Place in a labelled vacuum-pack bag. Keep cold and freeze at -18°C as soon as possible.

MEAT:

Collect 50 g of muscle tissue, approximately 3 × 3 × 5 cm, from the right longissimus thoracis at the 7th rib. Place in a labelled vacuum-pack bag. Keep cold and freeze at -18°C as soon as possible.



Unique IDs for farm samples

Unique IDs are printed on sticker sheets and applied to sample containers or labels. Use one sticker for each sample item. Each Unique ID is made of four letters and three numbers.

**LETTERS IDENTIFY
EACH FARM**

**NUMBERS IDENTIFY
EACH SAMPLE**



FQRT238

World Forest ID

Central Brazilian Cattle collection 1

Phase 1 / July 2026

SINGLE FARM EXAMPLE

Each farm has its own four-letter code used for all samples from that farm.



Example farm:

FQRT493 water vial

FQRT157 grass sample

FQRT762 feed sample



FQRT872

World Forest ID

Central Brazilian Cattle collection 1

Phase 1 / July 2026



FQRT157

World Forest ID

Central Brazilian Cattle collection 1

Phase 1 / July 2026



FQRT762

World Forest ID

Central Brazilian Cattle collection 1

Phase 1 / July 2026

Unique IDs for abattoir samples

Unique IDs are printed on sticker sheets and applied to sample containers or labels. Use one sticker for each sample item. Each Unique ID is made of four letters and three numbers and a suffix.

**LETTERS & NUMBERS
IDENTIFY EACH COW**

**SUFFIX IDENTIFIES
SAMPLE TYPE**



SINGLE COW EXAMPLE

Each animal has its own code used for all samples from that animal, with a suffix to denote the sample type.

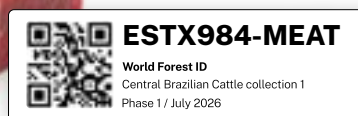
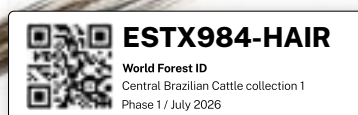


Example cow:

ESTX984-HAIR tail hair

ESTX984-SKIN meat

ESTX984-MEAT skin



Water collection (farm)

1. Apply one Unique ID sticker to each vial and attach a sample label to the containing bag.
2. Complete the label and photograph it beside a GPS device showing the coordinates.



3. Collect from each distinct source used by the cattle, such as a trough, well, stream or pond.
4. From each source, completely fill and seal enough vials to reach 200 ml. Place them all in the labelled bag.



5. Record the observation in the app including photo with the GPS device.



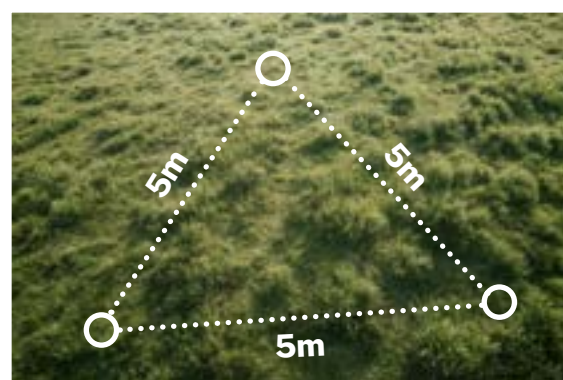
 **STORE CHILLED AT 4°C.
DO NOT FREEZE**

Pasture Grass collection [i]

1. Prepare 3 labelled C4 paper bags per grazing site, up to 9 per farm. Apply a different Unique ID to each bag.
2. Complete each label and photograph it beside a GPS device showing the coordinates.



3. Identify up to 3 grazing sites used by the cattle. Treat each field, paddock or pasture area as a separate sampling location.
4. At each location, take samples from 3 different points at least 5 m apart from each other.



5. Fill each bag with grass from one sampling point. Avoid soil and do not compress the sample.



DO NOT COLLECT HAY, SILAGE, DEAD GRASS, ROADSIDE GRASS OR GARDEN GRASS.

Pasture Grass collection [ii]

6. Record the observation in the World Forest ID app.



7. Air-dry for 48 hours. If air drying outside the bag, keep each sample matched to its correct Unique ID.



8. Return each dry sample to its labelled bag and add silica gel if available.



KEEP SAMPLES DRY.

Feed collection (farm)

1. Prepare one labelled C4 paper bag for each feed type. Apply a Unique ID to each bag.
2. Complete each label and photograph it beside a GPS device showing the coordinates.



3. Collect 2 full handfuls of each feed type currently given to the cattle. Place each type in a separate labelled bag.
4. Photograph any available feed packaging, label, feed bin, ration sheet, feed log or feed diary.



5. Record each sample in the World Forest ID app, including the feed photographs.



⚠ DO NOT COLLECT GRASS, HAY OR SILAGE AS FEED SAMPLES.

1. Apply the sample label and Unique ID to a C4 envelope.
2. Complete the label and photograph it beside a GPS device showing the coordinates.



3. Use a clean comb to remove loose or dead hairs. Collect 25 of the longest tail-switch hairs with roots intact. Do not cut.
4. Keep the hairs aligned, roll them in tissue paper and tape the paper closed. Mark an arrow towards the tail end.



- Package in envelope & record the observation in the app.



KEEP SAMPLES DRY.

Abattoir hygiene

1. Wear clean disposable gloves when handling animal samples.
2. Do not touch animal samples with bare hands.
3. Use a fresh blade for each animal where possible.
4. Clean and sanitise the comb, pliers, forceps and any reused tools between animals.
5. Avoid any cross contamination between samples



Image

Skin collection (abattoir)

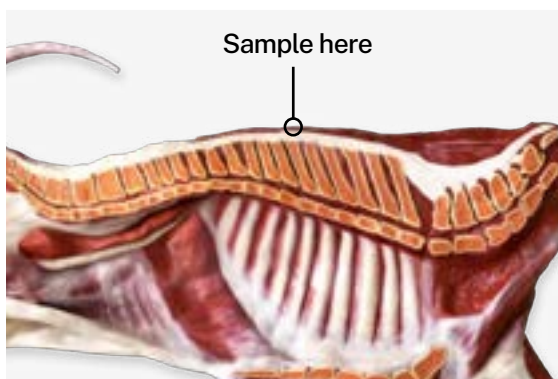
1. Apply the sample label to a freezer-grade vacuum pack



2. Fill in the label, add a Unique ID and take a photo with a GPS device that shows the location



3. Sample above the longissimus thoracis, 7th rib section, right side



4. Sample 30 g of skin (5 cm x 5 cm) and trim visible fat and debris.



5. Seal in a freezer-grade vacuum pack & record observation in the app



6. Keep cold and freeze at -18°C as soon as possible.



Meat collection (abattoir)

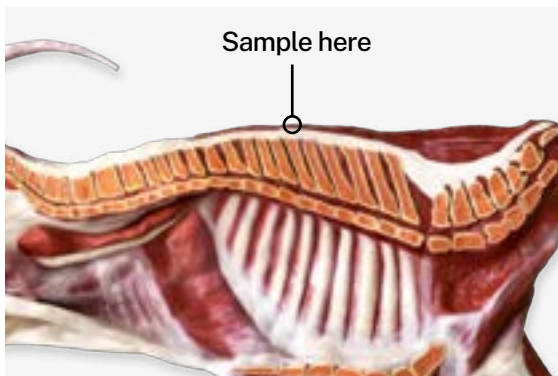
1. Apply the sample label to a freezer-grade vacuum pack



2. Fill in the label, add a Unique ID and take a photo with a GPS device that shows the location



3. Take from longissimus thoracis, 7th rib section, right side



4. Sample 50 g muscle tissue (approx. 3 × 3 × 5 cm),



5. Seal in a freezer-grade vacuum pack & record observation in the app



6. Keep cold and freeze at -18°C as soon as possible.



Additional pages TBC

What not to sample?

How to use the app?

—

Labels/packaging spec



Water sample

Muestra de agua / Amostra de água



200 ml of water from one distinct source. Fill every vial completely. Store at 4°C. Do not freeze.

200 ml de agua de una sola fuente. Llene cada vial por completo. Conservar a 4 °C. No congelar.

200 ml de água de uma única fonte. Encha cada frasco completamente. Armazenar a 4 °C. Não congelar.

FARM NAME

Nombre de la finca / Nome da fazenda

WATER SOURCE TYPE

Tipo de fuente de agua / Tipo de fonte de água

COUNTRY

País / País Fecha de colecta / Data de coleta

DATE OF COLLECTION

Vials totalling 200 ml / A5 label / Plastic zip-lock bag 200 × 250 mm or larger.





Pasture grass sample

Muestra de pasto / Amostra de pasto



Fill the envelope with pasture grass. No hay, silage, dead, roadside or garden grass. Keep dry.

Llene el sobre con pasto del potrero de ganado. No recolecte heno, ensilaje, pasto muerto, de carretera ni de jardín. Manténgalo seco.

Encha o envelope com pasto da pastagem do gado. Não colete feno, silagem, ou pasto morto, de beira de estrada ou de jardim. Mantenha-o seco.

FARM NAME

Nombre de la finca / Nome da fazenda

COUNTRY

Pais / País

DATE OF COLLECTION

Fecha de colecta / Data de coleta

A5 label / C4 Envelope



QR CODE



Feed sample

Muestra de alimento / Amostra de ração



2 full handfuls of one feed type given to the cattle. No grass, hay or silage. Keep dry.

2 puñados llenos de un tipo de alimento suministrado al ganado. No recolecte pasto, heno ni ensilaje. Mantener seco.

2 punhados cheios de um tipo de ração fornecida ao gado. Não colete pasto, feno nem silagem. Manter seco.

FARM NAME

Nombre de la finca / Nome da fazenda

FEED TYPE / BRAND

Tipo y marca del alimento / Tipo e marca da ração

COUNTRY

País / País

DATE OF COLLECTION

Fecha de colecta / Data de coleta

A5 label / C4 Envelope





Tail hair sample

Muestra de pelo de cola / Amostra de pelo da cauda



Comb the tail switch. Collect 25 of the longest hairs, roots intact. Do not cut. Keep aligned and dry.

Peine el mechón de la cola. Recolecte 25 de los pelos más largos, con las raíces intactas. No los corte. Manténgalos alineados y secos.

Penteie o tufo da cauda. Colete 25 dos pelos mais longos, com as raízes intactas. Não corte. Mantenha-os alinhados e secos.

ABATTOIR NAME

Nombre del matadero / Nome do frigorífico

FARM NAME

Nombre de la finca / Nome da fazenda

COUNTRY

País / País

DATE OF COLLECTION

Fecha de colecta / Data de coleta

A5 label / C4 Envelope / A4 tissue paper & tape to roll and secure hair packaging



QR CODE



Skin sample

Muestra de piel / Amostra de pele



30 g skin, approx. 5 × 5 cm. Over longissimus thoracis, 7th rib, right side. Keep cold; freeze at -18°C.

30 g de piel, aprox. 5 × 5 cm. Sobre el longissimus thoracis, 7.ª costilla, lado derecho. Mantener refrigerado; congelar a -18°C.

30 g de pele, aprox. 5 × 5 cm. Sobre o longissimus thoracis, 7ª costela, lado direito. Manter refrigerado; congelar a -18°C.

ABATTOIR NAME

Nombre del matadero / Nome do frigorífico

FARM NAME

Nombre de la finca / Nome da fazenda

COUNTRY

País / País

DATE OF COLLECTION

Fecha de colecta / Data de coleta

A5 label / Freezer-grade bag 200 × 250 mm or larger.



QR CODE



Meat sample

Muestra de carne / Amostra de carne



50 g, approx. 3 × 3 × 5 cm. Longissimus thoracis, 7th rib, right side. Keep cold; freeze at -18°C.

50 g, aprox. 3 × 3 × 5 cm. Longissimus thoracis, 7ª costilla, lado derecho. Mantener refrigerado; congelar a -18°C.

50 g, aprox. 3 × 3 × 5 cm. Longissimus thoracis, 7ª costela, lado direito. Manter refrigerado; congelar a -18°C.

ABATTOIR NAME

Nombre del matadero / Nome do frigorífico

FARM NAME

Nombre de la finca / Nome da fazenda

COUNTRY

País / País

DATE OF COLLECTION

Fecha de colecta / Data de coleta

A5 label / Freezer-grade bag 200 × 250 mm or larger.



Feed history ^{Phase [i]}



IMPORTANT — Photograph each current feed's product name, ingredients and nutritional analysis, including any stated fat, oil or lipid content. Also photograph available feed records.

FARM DETAILS:

Farm name:

Date (Day/Month/Year)

CURRENT FEED: *(One row for each feed sample)*

Feed product name:

Sample Unique ID:

Given for (days/months):

Label photo Y/N

..... ☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

PREVIOUS FEED: *(One row for each feed sample)*

Feed product name:

Start Date (Month/Year)

End Date (Month/Year)

Label photo Y/N

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

$$\frac{1}{N} \sum_{i=1}^N \frac{1}{\sigma_i^2} \left(\frac{1}{N} \sum_{j=1}^N \frac{1}{\sigma_j^2} \right) \left(\frac{1}{N} \sum_{k=1}^N \frac{1}{\sigma_k^2} \right)$$

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Cattle history Phase [i]



IMPORTANT — Verify each animal ID and record any previous location and movement date. Do not assume they share the same history. Write “unknown” rather than guessing.

FARM DETAILS:

Farm name:

Date (Day/Month/Year)

Were all five sampled cattle born on this farm and kept here continuously? ☐ Yes ☐ No

Were all five sampled cattle have the same shared location history ☐ Yes ☐ No

CATTLE HISTORY: *(One row for each different location)*

Animal Unique ID:

Age when it arrived

Previous location if known

[illegible]

Our PDF guides

WOOD

Collection guide for wood

Drying guide for wood

SOY

Collection guide for soy

Drying guide for soy

COCOA

Collection guide for cocoa

Drying guide for cocoa

DISPATCH

Sending samples to Belgium

Sending samples to Australia

TRADED SAMPLES

Collection guide for traded samples



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