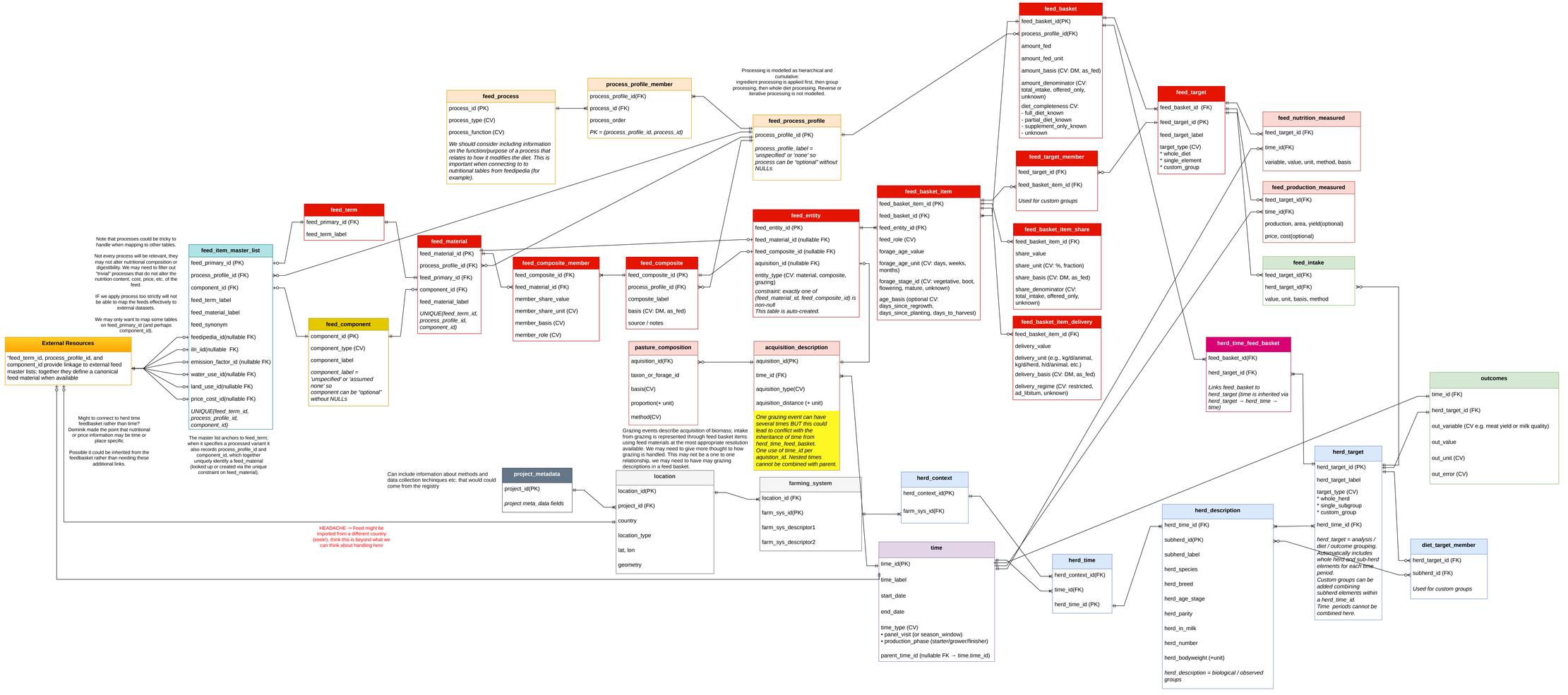

External Resources
"feed_term_id, process_profile_id, and component_id provide linkage to external feed master lists; together they define a canonical feed material when available
Might to connect to herd time feedbasket rather than time?
Dominik made the point that nutritional or price information may be time or place specific
Possible it could be inherited from the feedbasket rather than needing these additional links.
feed_item_master_list
feed_primary_id (PK)
process_profile_id (FK)
component_id (FK)
feed_term_label
feed_material_label
feed_synonym
feedipedia_id(nullable FK)
ilri_iid(nullable FK)
emission_factor_id (nullable FK)
water_use_id(nullable FK)
land_use_id(nullable FK)
price_cost_id(nullable FK)
UNIQUE(feed_term_id, process_profile_id, component_id)
Note that processes could be tricky to handle when mapping to other tables.
Not every process will be relevant, they may not alter nutritional composition or digestibility. We may need to filter out "trivial" processes that do not alter the nutrition content, cost, price, etc. of the feed.
IF we apply process too strictly will not be able to map the feeds effectively to external datasets.
We may only want to map some tables on feed_primary_id (and perhaps component_id).
The master list anchors to feed_term; when it specifies a processed variant it also records process_profile_id and component_id, which together uniquely identify a feed_material (looked up or created via the unique constraint on feed_material).
feed_term
feed_primary_id (FK)
feed_term_label
feed_component
component_id (PK)
component_type (CV)
component_label
component_label = 'unspecified' or 'assumed none' so component can be "optional" without NULLs
feed_material
feed_material_id (PK)
process_profile_id (FK)
feed_primary_id (FK)
component_id (FK)
feed_material_label
UNIQUE(feed_term_id, process_profile_id, component_id)
feed_process
process_id (PK)
process_type (CV)
process_function (CV)
We should consider including information on the function/purpose of a process that relates to how it modifies the diet. This is important when connecting to to nutritional tables from feedipedia (for example).
process_profile_member
process_profile_id(FK)
process_id (FK)
process_order
PK = (process_profile_id, process_id)
Processing is modelled as hierarchical and cumulative:
ingredient processing is applied first, then group processing, then whole diet processing. Reverse or iterative processing is not modelled.
feed_process_profile
process_profile_id (PK)
process_profile_label = 'unspecified' or 'none' so process can be "optional" without NULLs
feed_composite_member
feed_composite_id (FK)
feed_material_id (FK)
member_share_value
member_share_unit (CV)
member_basis (CV)
member_role (CV)
feed_composite
feed_composite_id (PK)
process_profile_id (FK)
composite_label
basis (CV: DM, as_fed)
source / notes
feed_entity
feed_entity_id (PK)
feed_material_id (nullable FK)
feed_composite_id (nullable FK)
aquisition_id (nullable FK)
entity_type (CV: material, composite, grazing)
constraint: exactly one of (feed_material_id, feed_composite_id) is non-null
This table is auto-created.
pasture_composition
aquisition_id(FK)
taxon_or_forage_id
basis(CV)
proportion(+ unit)
method(CV)
acquisition_description
aquisition_id(PK)
time_id (FK)
aquisition_type(CV)
aquisition_distance (+ unit)
One grazing event can have several times BUT this could lead to conflict with the inheritance of time from herd_time_feed_basket. One use of time_id per aquisition_id. Nested times cannot be combined with parent.
Grazing events describe acquisition of biomass; intake from grazing is represented through feed basket items using feed materials at the most appropriate resolution available. We may need to give more thought to how grazing is handled. This may not be a one to one relationship, we may need to have may grazing descriptions in a feed basket.
Can include information about methods and data collection techinques etc. that would could come from the registry
project_metadata
project_id(PK)
project meta_data fields
location
location_id(PK)
project_id (FK)
country
location_type
lat, lon
geometry
farming_system
location_id (FK)
farm_sys_id(PK)
farm_sys_descriptor1
farm_sys_descriptor2
HEADACHE -> Feed might be imported from a different country (eeek!), think this is beyond what we can think about handling here
herd_context
herd_context_id(PK)
farm_sys_id(FK)
time
time_id(PK)
time_label
start_date
end_date
time_type (CV)
• panel_visit (or season_window)
• production_phase (starter/grower/finisher)
parent_time_id (nullable FK → time.time_id)
feed_basket_item
feed_basket_item_id (PK)
feed_basket_id (FK)
feed_entity_id (FK)
feed_role (CV)
forage_age_value
forage_age_unit (CV: days, weeks, months)
forage_stage_id (CV: vegetative, boot, flowering, mature, unknown)
age_basis (optional CV: days_since_regrowth, days_since_planting, days_to_harvest)
feed_basket
feed_basket_id(PK)
process_profile_id(FK)
amount_fed
amount_fed_unit
amount_basis (CV: DM, as_fed)
amount_denominator (CV: total_intake, offered_only, unknown)
diet_completeness CV:
- full_diet_known
- partial_diet_known
- supplement_only_known
- unknown
feed_target_member
feed_target_id (FK)
feed_basket_item_id (FK)
Used for custom groups
feed_basket_item_share
feed_basket_item_id (FK)
share_value
share_unit (CV: %, fraction)
share_basis (CV: DM, as_fed)
share_denominator (CV: total_intake, offered_only, unknown)
feed_basket_item_delivery
feed_basket_item_id (FK)
delivery_value
delivery_unit (e.g., kg/d/animal, kg/d/herd, h/d/animal, etc.)
delivery_basis (CV: DM, as_fed)
delivery_regime (CV: restricted, ad_libitum, unknown)
feed_target
feed_basket_id (FK)
feed_target_id (PK)
feed_target_label
target_type (CV)
* whole_diet
* single_element
* custom_group
feed_nutrition_measured
feed_target_id (FK)
time_id(FK)
variable, value, unit, method, basis
feed_production_measured
feed_target_id(FK)
time_id(FK)
production, area, yield(optional)
price, cost(optional)
feed_intake
feed_target_id(FK)
herd_target_id(FK)
value, unit, basis, method
herd_time_feed_basket
feed_basket_id(FK)
herd_target_id (FK)
Links feed_basket to herd_target (time is inherited via herd_target → herd_time → time)
herd_time
herd_context_id(FK)
time_id(FK)
herd_time_id (PK)
herd_description
herd_time_id (FK)
subherd_id(PK)
subherd_label
herd_species
herd_breed
herd_age_stage
herd_parity
herd_in_milk
herd_number
herd_bodyweight (+unit)
herd_description = biological / observed groups
herd_target
herd_target_id (PK)
herd_target_label
target_type (CV)
* whole_herd
* single_subgroup
* custom_group
herd_time_id (FK)
herd_target = analysis / diet / outcome grouping. Typically includes whole herd and sub-herd elements for each time period.
Custom groups can be added combining subherd elements within a herd_time_id.
Time_periods cannot be combined here.
outcomes
time_id (FK)
herd_target_id (FK)
out_variable (CV e.g. meat yield or milk quality)
out_value
out_unit (CV)
out_error (CV)
diet_target_member
herd_target_id (FK)
subherd_id (FK)
Used for custom groups