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Phase IIb Proposal

We will look into several data pieces for our project proposal and specifications to incorporate into our database. This data will help us analyze birth weight comparisons for each year the data is available, where the topic will be broken down into several subtopics. These subtopics will consist of averages of birth weight, the average age a female goat gives birth, difference between experienced mothers giving birth in weight. Along with that, we will also pursue our topic of interest, which is whether vaccines influence the birth weight of offspring between vaccinated and unvaccinated female mothers. To start, we want to look into the data section called Animals, which contains information about sex, date of birth, and tags. Using this data, we can narrow down our search to answer different parts of the topic, where we have to find information about the average age of female goats that gave birth. Hence, sex, date, and birth are important to help pin down data points that need to be prioritized, as well as keep the unique identities of goats of interest.

The next data section to be reviewed will be Traits, which contains information about BWT, live weight, birthdate, number of kids a female goat has, number of pregnancies, and mothering. Using this data, we can start creating more meaningful comparisons between birth weights, where we can calculate the average weight, median, high average, and overall average of goats. This should also include

information about age, where we will have to find the average age that a female goat gives birth and previous history of pregnancies.

Our last data set that we want to look into will be activities, to look more closely at our topic of interest. More so related to anything that could relate to vaccines that correlate with birth weight, but the topic could slightly change should there be a need that we want to cover a little more. While this may seem like a lot of information to look over, with organization and careful consideration of working on our database, it should come along smoothly if we go from one data set to another.

The data being deployed for the project's proposal and database integration is key to identifying and solving sustainability issues and creating room for positive change. The project aims to evaluate birth weight differences from the perspective of natural selection and vaccination impact on the birth weight of animal offspring. So, the project can bring out the sustainability of animal breeding practices and the potential effect of vaccination on livestock health. The data analyses of animals, like sex, date of birth, and tags, will help understand demographic trends of birth weights and show how sex and date of birth can influence the weight of the offspring (Hawken et al. 2400). This data can be useful in detecting problems in animal breeding, like potential sex-based weight differences and the birthdate's influence on weight. Also, proposals for positive action can be made, like controlled breeding programs to enhance the health of the offspring.

The sustainability problem we will be exploring is the effect of vaccination during pregnancy on the newborn weight of infants among vaccinated and non-vaccinated mothers. Significantly, newborns' health may be highly dependent on their birth weight.

Low birth weight has causal links with many health problems, such as developmental delay, breathing difficulties, and death (Hawken et al. 2401). Vaccination is a key strategy for the prevention of infectious diseases. However, there is a scarcity of research on vaccine influence on birth weight in the field. Through this subject, we can find obstacles that can be unsustainable and areas of positive change.

The primary stakeholders affected by the issue include pregnant moms, veterinarians, and the. Expected mothers are the primary target group because they receive vaccines during pregnancy. Healthcare providers are considered the same because they deliver vaccines to the goats (Hawken et al. 2403).

The use of data is crucial because it provides a lens through which we can see the sustainability issues and opportunities for good transformation. By examining the effect vaccination has on the birth weight of their offspring in vaccinated and unvaccinated female moms, we will see the possible growth problems and how to make positive changes. With the data being monitored and analyzed thoroughly, we can develop evidence-backed suggestions to improve the health condition of newborns and sustainability in their breeding.

Use Case 1: Compare Mothers

1. User selects a mother
2. User selects another mother
3. System creates graph comparing data
4. User selects specific data type
5. System filters for said type
6. User deselects mother
7. System clears data and preps for new selection
8. User selects new mother for comparison

Use Case 2: View Vaccine Data

1. User goes to vaccine page
2. System generates and shows chart of number of vaccines vs important characteristics
3. User selects an area on the chart
4. System shows more data relating to that area
5. User clicks on goat
6. System displays all data pertaining to goat

Work Cited

Hawken, Steven, et al. "Effects of sex and birth weight on non-specific health services use following whole-cell pertussis vaccination: a self-controlled case series analysis." *Human vaccines & immunotherapeutics* vol. 15, 10 (2019): 2399-2404. doi:10.1080/21645515.2019.1586029