Letter to the Editor: A response to Adesogan et al. (2020)

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In their letter, Adesogan et al. (2020) expressed concern regarding studies examining the ensiling process that are submitted for peer review in the *Journal of Dairy Science*. Specifically, 2 concerns were raised. First, it was suggested that, “the *Journal of Dairy Science* Editorial Board is planning to impose stricter criteria on acceptance of silage-focused studies or to stop accepting them.” I wish to clarify any confusion around this suggestion by stating that the journal has no plan to impose stricter conditions on silage-focused studies or to stop accepting them outright. I would, however, like to take this opportunity to highlight the journal’s scope and discuss how it may relate to silage studies.

As the authors are likely aware, and as noted in the Instructions to Authors: Style and Form, the *Journal of Dairy Science* seeks to publish, “... original research, invited review articles, and other scholarly work that relates to the *production and processing of milk or milk products* intended for human consumption” (Journal of Dairy Science, 2020a). I agree with Adesogan et al. (2020) that, in many countries, silage is an important crop for the production of milk or milk products intended for human consumption. Thus, we are enthusiastic about publishing novel and potentially important silage-related studies. Submissions related to silage are generally most relevant to the journal’s Animal Nutrition section, which publishes papers related to feeds and feeding, including but not limited to those related to forages (Journal of Dairy Science, 2020b). Papers desirable for publication in the journal relate to improved nutrient recovery or digestibility, stability, and palatability. Such topics are of particular interest if the objectives are novel and the implication for the dairy industry is clearly stated and discussed. Understanding the relevance and application of observations related to the production of milk are not the responsibility of the reader but, rather, lie with the author. Manuscripts submitted and evaluated by the journal can describe studies conducted on material harvested from a field, with all measures collected in the laboratory, without

the use of a feeding study. Such submissions should include inferences related to the nutrition of a dairy animal and not be limited to an agronomic scope. Discussion related to how observations relate to dairy production is expected. Indeed, in some cases, application to the production and processing of milk or milk products is not clear, which makes the review process and the determination of “fit” within the journal’s scope challenging. Fitness resides with the research approach and results, which require evaluation by peer review on newly submitted manuscripts or on previous rejected manuscripts of a similar approach, objectives, or outcomes.

A second concern of Adesogan et al. (2020) is that, “... that some silage manuscripts have been rejected recently because the field was considered the experimental unit and not the silo.” Although it would be unethical and a breach of confidentiality to comment publicly on a specific decision, we gladly take this opportunity to discuss the experimental unit for silage-related studies. Working with our co-publisher (Elsevier), the *Journal of Dairy Science* relies upon the peer review process to maintain relevance to its readership and to uphold the quality and scientific validity of individual articles (Elsevier, 2020). It is the responsibility of authors to communicate the soundness of objectives, experimental design, materials and methods, discussion, and resulting conclusions in their submissions. The editor’s view of experimental design is pragmatic. Although we know that the number of replications affects the precision of any estimate of the mean and statistical power, we also recognize that the cost of conducting an experiment places practical constraint on the number of replications or what is considered reasonable (Kuehl, 1994). Determination of an adequate study design, experimental unit, and replication is the responsibility of the handling section editor, who in most cases seeks recommendations from peer reviewers. According to Steel et al. (1997), an “experimental unit,” or “experimental plot,” is the unit to which the treatment is applied. They noted that such a description is very general and difficult to define because the terms depend upon the field of study but the effect of treatment is always made on the “sampling unit.” This sampling unit may be the whole or a portion of the experimental unit. Steel et al.

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(1997) also stated that flexibility exists when defining the experimental unit. This is because, in some cases, the experimental unit is so large that it is not practical to use it as the sampling unit. Conversely, a single small sampling unit could be considered inadequate; in such a case, 2 more random subdivisions of the experimental unit are needed. Steel et al. (1997) further underscored the importance of defining the population for which inferences are to be drawn from a random sample of the population. In the case of a feeding study identified by Adesogan et al. (2020), animals were the experimental unit and, in feeding different treatment diets to cows (in replicate), results were assumed to be representative of the general population of cows.

In certain types of experiments, replication is an important means of increasing the scope of inference of the experiment; the samples' population is less restricted in definition and the inferences are broadened. Robinson et al. (2006) attempted to clarify what could be considered "laboratory replicates" and "experimental replicates." They suggested that a proper silage study begins with a "large sample" of whole-crop silage that can be randomly divided into subsamples, with portions of each being placed in mini-silos. Once treatment is applied to these mini-silos in replicate, they can be considered statistical replicates. The example cited begins with a large sample of silage that is randomly divided into 20 subsamples, 5 of which are treated with 1 of 4 enzymes; the mini-silo was considered a statistical replicate of 5. Using this experimental approach may be adequate for making a narrow inference or in a study in which there are unsurmountable constraints that limit the number of replications. However, consider the situation in which an investigator wants to determine whether there is any real difference in the performance of different types of inoculants on alfalfa silage. The investigator knows that silage is a complex crop that may be harvested at varying maturities and moisture contents. In this case, the investigator should likely compare inoculants on silage of different maturities and moisture contents to justify recommendations across most kinds of alfalfa silages. In this case, beginning with a large sample, as described by Robinson et al. (2006), could be considered inadequate and not reflective of the variation associated with the greater population of silages. As stated above, we want to publish novel and potentially important silage-

related studies but emphasize that it is the author's responsibility to justify the testing methods used and to identify any limitations to replication. As in Udén et al. (2012), the validity of an evaluation with limited replication is not automatically justified but evaluation for the suitability of publication will be based upon novelty, scientific value, and applicability outside the confines of the experimental conditions.

In closing, we thank Adesogan et al. (2020) for their interest in and support of the *Journal of Dairy Science*. We hope that authors continue to accept requests to review manuscripts submitted to the *Journal of Dairy Science*. Identifying willing and qualified reviewers is a continual challenge but critical to the success of the peer review process and thus the journal.

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