

## NRSP-9 Renewal – addressing reviewers’ comments

First the NRSP-9 Coordinating Committee is grateful for the comments provided by reviewers. The Committee appreciates the recognition of the NRSP-9 over the past 15 years.

The points raised by the reviewers can be generally categorized as follows:

1. Elaborate the future role of the nonprofit component of NANP and how this might dovetail with other financial collaborations with industry and government entities.
2. Further highlight the contributions of the NRSP-9 to the development of NASEM Nutrient Requirement Series projects and publications. This could include developing a closer relationship with BANR.
3. Describe how NRSP-9 can leverage objectives and activities to help provide insight in to how livestock genetic improvement affects nutrient requirements and nutrient use and the environment.

Below are comments/revisions based on Reviewers’ 1-3 comments:

### Reviewer 1

Yet much more can be done with some expansions of focus on 1) integrating with genetic improvement of animals (as is addressed by the authors but needs to be strengthened and 2) developing a more defined, focused and funded cooperation with the National Research Council, The Board on Agriculture and Natural Resources of The National Academies. Detailed review points are below, followed by suggestions for revisions.

The above points do come out in the specific comments. It is highlighted several places in the “Prerequisite Criteria” the strong linkage of the NRSP-9 charge and support of the NASEM Nutrient Requirement Publication. The first three objectives for the new proposal are directly linked to augmenting the NANP nutrient database(s) and requirement models. We believe that this has been highlighted in numerous locations in the renewal.

A major impact that is not sufficiently discussed is the fact that this group is responsible for the success of the NRC Nutrient Requirements of Animals program, the major goal of creating this NRSP in the first place.

The NRSP-9 project group appreciates the reviewer’s comments here. Our role with NASEM has been close and will continue in the future. Historically NRSP-9 has not worked directly with BANR, but open in the future to develop that relationship more fully. NRSP-9 recognizes that remaining viable in the future will require continued collaborations with NASEM but also new industry and government partners. This is where we see the value of the nonprofit arm of

NRSP-9 (additional wording is added to highlight the importance of the nonprofit in 2<sup>nd</sup> paragraph under Prerequisite Criteria). We recognize that NASEM Nutrient Requirement series have remained successful in part via NRSP-9; however, currently NASEM's efforts are largely independent of NRSP-9. Again, NRSP-9 recognizes the importance of NASEM, but needs to develop new collaborations moving forward.

The future demand is even greater if they can get more and sustained funding so that advertising could bring in more users successful use can bring in more and cetera. But they must have dedicated staff, not soft money post docs who are expected to do technical work while also doing publishable research. We need a better model.

This has been recently discussed. To be transparent, we do not really know the mechanism to implement a "permanent staff" presence to this project. We believe that this will involve the nonprofit arm of NRSP-9.

This has been a highly successful NRSP program, one that the USDA/ARS/NRC should use as a model. Yet even with the success to date it has been severely limited and has not truly met the original goals of coordinating nutrition of domestic animals, especially in the role of support of the NRC Nutrient Requirements, and of forming a highly used centralized feed database and nutrition research / diet formulation and optimization program. This has not been due to a lack of effort on the part of participants, but has truly been due to a severe lack of funding for the core staff and leaderships of a true Research Support Program.

We agree! The upper ceiling in terms of NRSP-9 impacts could be heightened with additional funding. The current renewal budget request represents a 49% increase from the 2020-25 NRSP-9 budget. Based on leveraged funding we are not requesting more at this time.

Increased coordination and cooperation with the NRSP 8 Genomic Capacity: Building Applied Genomic Capacity for Animal Industries program. The authors refer to some past work integrating genetic/genomic work into research, which has been a great start. But just as plant/crop production has been doing for years, we must connect the genetic changes in domestic animals directly with the changes in nutrient requirements, and I include in this the environmental impacts (by definition, changing the diet of domestic animals changes the environmental impact).

This is a very important point. The NRSP-9 has progressed its work with the understanding that accurate nutrient databases and requirement models will result in improving the efficiency of nutrient use by animals. This does have impacts on the environment and will be elucidated via the interactions among the Climate Smart Feed Management, Feed Composition, and Modeling Committees of NRSP-9. The actual point of reference for establishing the genetic potential of domestic animals will be determined outside NRSP-9 (i.e., NASEM and genetic improvement committees). Nonetheless, wording is included to highlight the potential to work with NRSP-8 (6<sup>th</sup> paragraph under Prerequisite Criteria).

The committee has made a great start with the creation of the 501 c 3 organization, and thus should be more explicit in stating as an objective to work with public and private entities (some of which they listed but should include the AFIA, the FDA, EPA, private companies (Cargill, whatever Purina is called now, etc.) A national checkoff system like 1 cent on a ton of food could produce a few million dollars per year for such an effort.

Again, wording is provided to elaborate on the role of the NRSP-9 nonprofit and potential contributors. Hopefully, others can take head of the checkoff suggestion, or look at a voluntary contribution from industry based on tonnage of feed produced annually – this is a great suggestion.

## **Reviewer 2**

Again, thank you for recognizing NRSP-9 as a valuable resource

There are two minor weaknesses in the current proposal. First, it was very difficult to understand the proposed budget and review the budget tables, which were located at the end of the proposal. This format was probably due to the limitations of NIMSS, but it would have been easier to understand and review the budget, if the budget tables had been located on the same page (or in closer proximity to) the budget justification text.

We followed the budget format from the 2020-25 proposal. Because we have a significant number of nonpaid academic professionals, government officials, and partnering professional societies, we believe that illustrating the extent of leveraged funding is important. If the administrative advisors for the project have suggestions here as to formatting, those changes will be made.

The second minor weakness is the relative lack of detailed description of the 501c3 nonprofit arm that was recently established by NRSP-9. While the committee is commended for establishing a 501c3 component, it would have been helpful to know how the nonprofit will function and who will be involved in ensuring the successful development and implantation of this group.

This was brought forward by Reviewer 1 as well. In part, the NRSP-9 Coordinating is currently developing procedures to recruit funds to the nonprofit. Again, additional wording is provided to define the role of the nonprofit.

## **Reviewer 3**

Complete integration into all NASEM Nutrient Requirement publications. Making data from NANP the “national” data set for nutrient requirements and modeling of livestock and companion animal (and potentially zoo animal) diet formulation This would be practical and

logical and give nutritional consultants and other professionals access to validated nutritional values from a variety of vetted laboratories from regions across the US.

We believe that we are working toward these ends. NASEM remains autonomous relative to the complement of their nutrient requirement series. The NRSP-9 has supported the development of the ingredient databases and nutrient requirement models used by NASEM. NRSP-9 will continue to develop database and modeling resources. Hopefully this will be done in conjunction with future NASEM nutrient requirement publications. It has been highlighted in the renewal the strong linkage between NASEM and NRSP-9.

Partitioning data by region of production is important, especially as the Climate-Smart Feed Management Committee initiates its effort.

The NRSP-9 Feed Composition Committee has discussed this on several occasions. There are potential industry partners that have indicated that these data are available for “certain” ingredients. Analytical laboratories are hesitant to provide additional descriptive metrics for ingredient analyses. Yes, we can add a sentence to the CSFM committee description (8<sup>th</sup> paragraph under Prerequisite Criteria).

The budget is highly leveraged and justified. To remain a sustainable entity, a nonprofit (501(c)3) arm of the NANP was established. Is there an opportunity to develop a licensing fee for diet formulation software companies to gain access to the data?

Although these discussions within the NANP Coordinating Committee have just been initiated, we added description of the ideas being discussed for revenue generation (2<sup>nd</sup> paragraph under Prerequisite Criteria).

Objectives and projected outcomes align with request for renewal. The opportunity exists to expand the data to all NASEM publications which support animal species.

This is clearly the idea moving forward with NRSP-9. Again, this will require a close working relationship with NASEM. Hopefully we have highlighted this in the revision as commented above.