

NRSP-9: The National Animal Nutritional Program

Update:

The National Animal Nutrition Program (NANP) serves as a forum to identify high-priority animal nutrition issues and provides an integrated and systemic approach to sharing, collecting, assembling, synthesizing, and disseminating science-based information, educational tools, and enabling technologies on animal nutrition that facilitate high-priority research among agricultural species. NRSP-9 was renewed in 2015 to continue its support of the agricultural animal research community.

The project is implemented by three standing committees- one providing overall program coordination, one focused on data and resources related to feed composition, and one focused on improving and sharing predictive modeling tools. At the start of the new 5-year project period for NRSP-9, a call for membership applications was disseminated broadly to help expand participation and provide opportunities for new leadership on each of the standing committees.

Major Accomplishments for 2015 through Spring 2016:

- Established new leadership for Coordinating, Feed Composition and Modeling Committees; broadened membership to ensure a balance and breadth of expertise, experience and diversity
- Held national policy summit *Defining Animal Nutrition Research Opportunities for a Healthy Society* which brought together previously unconnected experts on human, animal, environmental and economic health
- Literature on swine feed intake and maintenance energy responses to temperature were compiled and used to evaluate the NRC prediction of swine feed intake and maintenance energy during heat stress. The findings of these evaluations were shared with key stakeholders in the U.S. pork industry and with the research community through the NANP user feedback forum and through presentations at the 8th International Workshop on Modelling Nutrient Digestion and Utilization in Farm Animals.
- A dataset of swine, laying hen, broilers, dairy cattle, and beef cattle feed intake responses to temperature was collected and used to evaluate the opportunity to derive species-specific equations from multi-species datasets. The findings of this evaluation were submitted for publication in the *Journal of Agricultural Science*.
- The precision and accuracy of different literature synthesis methods (principle components analysis, meta-analysis, and weighted regression analysis) were evaluated. The findings of this assessment were submitted for presentation at the Animal Science Modelers Meeting in Orlando, FL.
- A wide variety of modeling resources have been made available on the NANP website including:
 - o Over 40 references on modeling techniques, methods and examples have been cataloged and summarized.
 - o A repository of annotated code examples was compiled and made available for download.

- The animal performance data downloads have been updated with: 1) Dairy NRC data, 365 treatment means; 2) Lofgreen Garrett Beef data, 53 treatment means; 3) Environmental stress responses, 613 treatment means; 4) Beef digestibility data, 180 treatment means.
- Code to import animal performance data downloaded from the NANP website into standard statistical packages (R, SAS) was added to the NANP code repository.
- An empirical evaluation of the 2001 Dairy NRC model against a literature dataset of 374 treatment means has been conducted and distributed to the current Dairy NRC committee.
- Continued to contribute feed composition records to the database, which now contains 1.5 million feed composition records. Previously segregated entities are now freely sharing data and infrastructure has been put in place to clean, organize, and house that data for the use by the animal nutrition research community.
- Connections have been established to procure amino acid data from industry sources for use in feed composition tables for multiple species.
- A new information repository allowing researchers to compare the relative merits of different feed assays was initiated.
- The Global Animal Nutrition Expert Network (<https://gann-nanp.org/>) was established to help identify and connect to animal nutrition experts.