Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Development
Agricultural Development & Diversification Program (ADD)
Grant Project Final Report

Contract Number: 20059

Grant Project Title: BioPreservation Methods for Wetcake Distiller Grains

Amount of Funding Awarded: 21,840

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Report Submitted on: 10/27/09

Please use the following questions as a guide for writing your grant project final report. In your final report, please answer each question as it relates to your grant project.

1) What was the original intent of the grant? The original intent of the grant was to evolve probiotic bacteria to prevent mold growth on wetcake and to assess the probiotic-treated wetcake as a viable nutrition source for cow feed.

   - What did you want to accomplish with the grant? We wanted to create bacteria that could grow on wetcake as a food source and in doing so, prevent the growth of mold so as to preserve the wetcake so that it could be fed to cows.

   - How was it expected to benefit Wisconsin Agriculture? Wisconsin agriculture would benefit greatly by utilizing a byproduct of the ethanol (biofuel) industry which benefits corn farmers as a food source for cows, which helps the dairy and meat industry in Wisconsin.

   - What makes this project work important or significant? This work is significant in that it provides a safe, effective method for preserving a food source for cows.

2) What steps did you take to reach your goal? We evolved bacteria to grow on wetcake as a food source (a very difficult task since it is not used to growing on food that has a low carbohydrate content) in the lab and continuously tested the evolved bacteria for its ability to inhibit mold growth on the media (wetacke).

   - What worked? We were able evolve bacteria to grow on wetcake as a sole food source and still retain the ability to inhibit mold growth (for up to 2 months in laboratory conditions).

   - What challenges did you face? We had the most difficulty in getting the bacteria to grow on the wetcake solely (as opposed to using an extract to make broth and solid plate media) and thus was not able to actually test it on cows to determine safety and palatability. Electrical problems wiped out our research and we had to start from scratch and the continuous turnover of student researchers made successive steps more difficult since once we had taken a step, a new student would come in and take over and have to be taught the system all over again.

- What would you do differently? It would be great to have a technician that could control the continuous work of the project while being able to teach the new students the techniques necessary to do the research.

3) What were you able to accomplish? We were able to evolve the bacteria to grow on wetcake as a food source and be able to inhibit mold growth. We were also able to apply for a patent on the methodology used to evolve the bacteria, although it is still pending.

   - What are the results from this project? The constructions of probiotic bacterial strains that can grow on wetcake and inhibit mold growth.

   - Include any analysis of data collected or materials developed through project work. The main materials developed in the project are the strains of probiotic bacteria that we are currently using in the lab to inhibit mold growth, which will hopefully be used in the near future in cow tests. This work is ongoing due to the funding provided by this grant.

4) What conclusions can you make based on project work the analysis of collected data? So far, the system that we have developed has worked well, but further research and testing needs to be done.

5) What do you plan to do in the future as a result of this project? We are currently talking with a couple of companies to continue the research and then apply it to cow feed depending on the status of the patent and the time available to the principle investigator.

6) What information or additional resources are needed to commercially develop this enterprise? We still need to assess the wetcake feed that has been treated with evolved probiotic bacteria to make sure it is safe for cows to eat. That work is still in progress.

7) How should the agricultural industry use the results from your grant project? The agricultural industry will benefit by increasing the value of corn crops for use as ethanol. Additionally, dairy and cattle farmers will benefit by having an alternative food source for their animals that is not only nutritious and protected from spoilage by mold, but also has probiotic bacteria that are normally fed to cattle in order to provide health benefits. This would be a great boon to agriculture in Wisconsin.