

Executive Summary

Dairies are under increased pressure to address air and water quality impacts from their operations. Every dairy farm is unique, and the more options dairy producers have for sustainable manure management, the more likely the farm will be able to comply with environmental regulations and continue to operate profitably. Fortunately, effective and economically advantageous management practices and technologies, designed to handle manure in environmentally sound ways, do exist. These practices are being tested and used successfully on dairies across the United States.

In recognition of the need for technology transfer and policies that support innovation, two nonprofit environmental organizations, Sustainable Conservation and Environmental Defense, teamed up to form a National Dairy Environmental Stewardship Council (NDESC), a group of manure management specialists from dairy producer and environmental organizations, USDA, U.S. EPA, academic researchers and extension agencies. The objective of the NDESC was to identify innovative and successful dairy manure management options that are both environmentally beneficial and economically viable, and to recommend strategies for increased adoption of these practices.

The NDESC focused on technologies or practices that warrant increased promotion and adoption, as well as those that are promising and worthy of further research. The outcome of these efforts is this final report, available online at <http://www.suscon.org/dairies/ndesc.asp>, that highlights a selection of the most promising dairy manure management options for various regions and dairy farm sizes, successful models for implementation, and policy strategies to promote wider adoption.

Recommendations for fostering innovative manure management practices through cost-share programs and through communications and technology transfer are also provided in the section “Innovations Through Cost-Share Programs”.

Introduction

Dairies in the U.S. are under increased pressure to address air and water quality impacts from manure, while simultaneously providing milk products to a growing population. Since the 1950s, the U.S. population has almost doubled and consumer demands for milk and milk products have grown commensurately. At the same time, intensification to achieve economies of scale has led to a decline in the overall number of dairy farms and an increase in average herd size. Suburbanization has driven land prices up in many of America’s rural areas, and owning enough land to dispose of manure in an environmentally responsible manner is getting more difficult.

Further, federal, state and local environmental regulations are requiring many producers to change the way they manage manure. The challenge now facing the U.S. dairy industry is to identify manure management strategies and technologies that will help them comply with environmental regulations and that are cost effective. Fortunately, many dairy farmers in the U.S. are rising to these challenges, and innovative manure management technologies and strategies that meet both goals are being used successfully on dairies of all sizes across the nation.

The National Dairy Environmental Stewardship Council (NDESC) was formed to identify innovative manure management strategies that are working on profitable dairies and help producers comply

with environmental regulations. The goal of this report is to communicate these strategies to the industry. The NDESC is a small group of manure management specialists from a variety of backgrounds. They come from across the U.S. with members drawn from dairy trade groups, U.S. Department of Agriculture, U.S. Environmental Protection Agency, academic and extension manure management specialists and environmental organizations. All of the members are in agreement that dairies need financially realistic options for reducing environmental impacts.

In light of new EPA confined animal feeding operation (CAFO) rules, balancing nutrient land application with crop requirements will be required for many dairies. Technologies and practices that can help producers achieve this goal can be categorized into two main categories: those that assist producers in matching manure nutrients to crop production on the farm and those that facilitate capturing nutrients in manure for more efficient use on the farm and/or exporting them off the dairy for use on other farms. Both of these strategies prevent the loss of nutrients to the environment.

Developing and implementing a nutrient management plan is generally the most logical first step toward achieving farm nutrient balance. With a nutrient management plan, producers have the information they need to land apply manure at rates that keep nutrients in the soil

and crops, and out of the air and water, or to determine the amount of manure nutrients to be exported off the farm. This report contains examples of technologies and practices that can assist producers in matching and capturing nutrients. The first section of the report focuses on strategies for matching manure nutrients to crop needs and includes strategies for feed management, land application, management intensive grazing, and land swapping.

The second section features technologies for capturing nutrients and includes strategies that separate solids and liquids, aid in the transport or storage of manure, or treat or stabilize manure nutrients. Some of these strategies are also beneficial for addressing air quality impacts from manure, such as odor and gaseous emissions. In addition to descriptions of each treatment or management practice, the report describes experiences of dairy producers successfully using these technologies and practices, along with sources of available cost-share programs and technical information.

The report also describes a few of the promising technologies still under development, but worth considering in the future. Recommendations for fostering innovative manure management practices through cost-share programs, communications and technology transfer are provided.