



November 26, 2007

MEMORANDUM

TO: Dairy BMP Committee

FROM: Bruce Louks, Manager, DEQ MMEI Program *BL*

SUBJECT: Request for the Addition of Zeolite BMPs to DEQ Rules for the Control of Ammonia from Dairy Farms

The Technical Committee met on November 12, 2007 to finalize its recommendations for Zeolite incorporation best management practices (BMPs) and the allocation of points for specific practices. These same recommendations were submitted to you October 23, 2007 and no additional comments were received. Therefore, the information summarized below will be submitted to the Director of the Department of Environmental Quality for approval and incorporation to the BMP matrix contained in IDAPA 58.01.01.760-764.

1. **Animal Nutrition.** No information has been presented relating the use of zeolite in the diet to the reduction in excreted urea and/or ammonia emissions. The committee will review this practice again when information is presented.

2. **Zeolite Incorporation (Composting).**

Definition: Regular incorporation of zeolite, (CEC of 1.6 or greater) at a rate of 5% zeolite on a dry weight basis, with fresh material to reduce ammonia volatilization and conserve nitrogen within the composted material.

Points: Open Lot: 12 points
 Freestall Scrape: 8 points
 Freestall Flush: 6 points

Compliance: Recordkeeping – documented with receipts

Management

Considerations: This practice will increase the nitrogen content of the applied compost. Producers should consult their nutrient management planner to review the effect of any product on agronomic performance.

At the 5% rate as suggested, compared to results reported in Lefcourt and Melsinger (JDS, 84:1814-1821), a reduction of 30% of NH₃ should be anticipated. With a 30% reduction the follow points should be assigned: Open Lot - 12 points; Freestall Scrape - 8 points; Freestall Flush - 6 points

3. **Zeolite Treatment of Bedding Materials – Freestall Barns.** The use of various bedding materials in freestalls is not included in the BMP matrix. No information has been presented relating the use zeolite as a bedding amendment to the reduction of ammonia emissions. The committee will review this practice again when information is presented.

4. **Zeolite Treatment of Liquid Manure.**

Definition: Addition of zeolite, with a CEC of 1.6mEq/g or greater, to the liquid wastewater stream before or after separation at a rate of 1 lb of zeolite per head per day of mature cows.

Points: Open Lot: 4 points
 Freestall Scrape: 5 points
 Freestall Flush: 5 points

Compliance: Recordkeeping – documentation of zeolite purchase with receipts and rate of zeolite applied to wastewater

Management

Considerations: This practice will increase the nitrogen content of the applied wastewater. Producers should consult their nutrient management planner to review the effect of any product on agronomic performance.

At the 5% rate as suggested, compared to results reported in Lefcourt and Melsinger (JDS, 84:1814-1821), a reduction of 30% of NH₃ should be anticipated. With a 30% reduction the follow points should be assigned: Open Lot - 4 points; Freestall Scrape - 5 points; Freestall Flush - 5 points