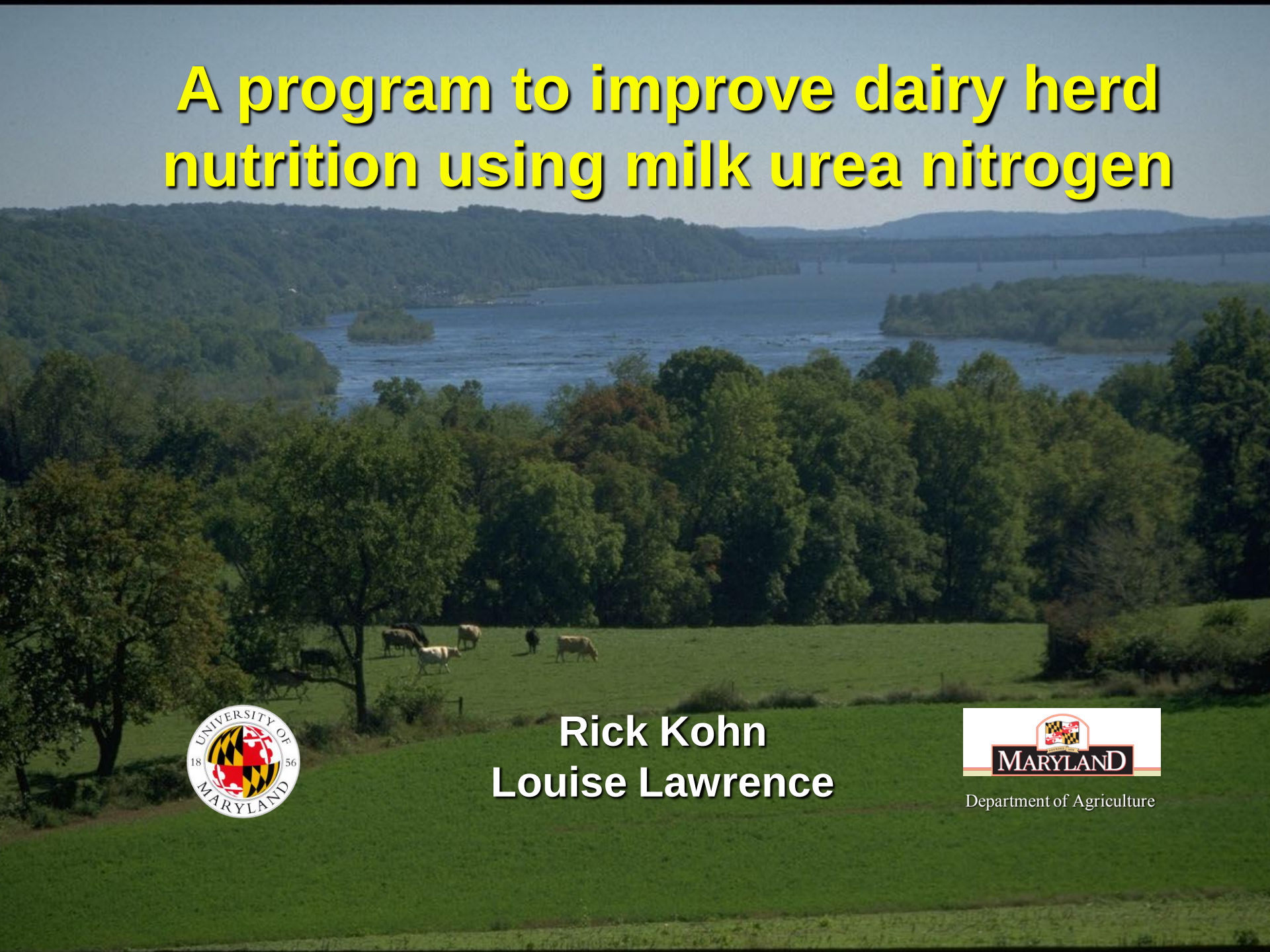
A program to improve dairy herd nutrition using milk urea nitrogen



Rick Kohn
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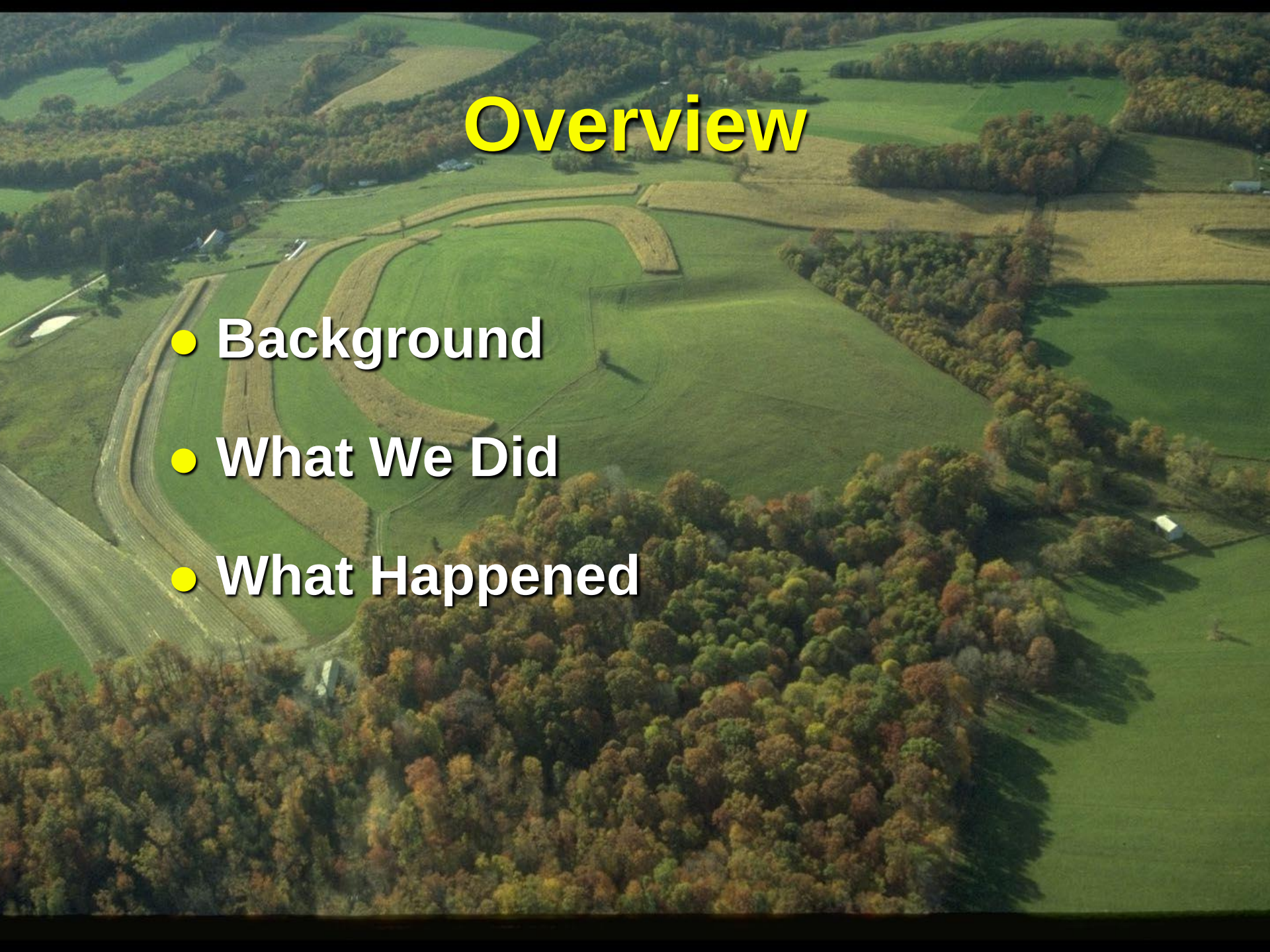
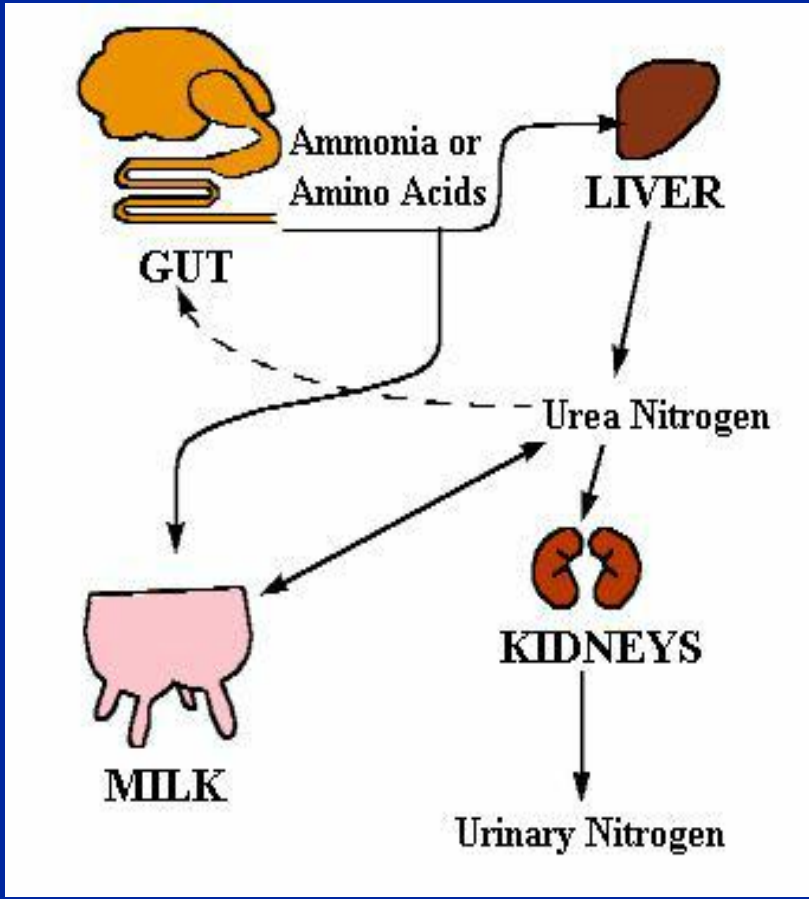


Overview

- Background
- What We Did
- What Happened

Milk Urea Nitrogen

Nitrogen Metabolism

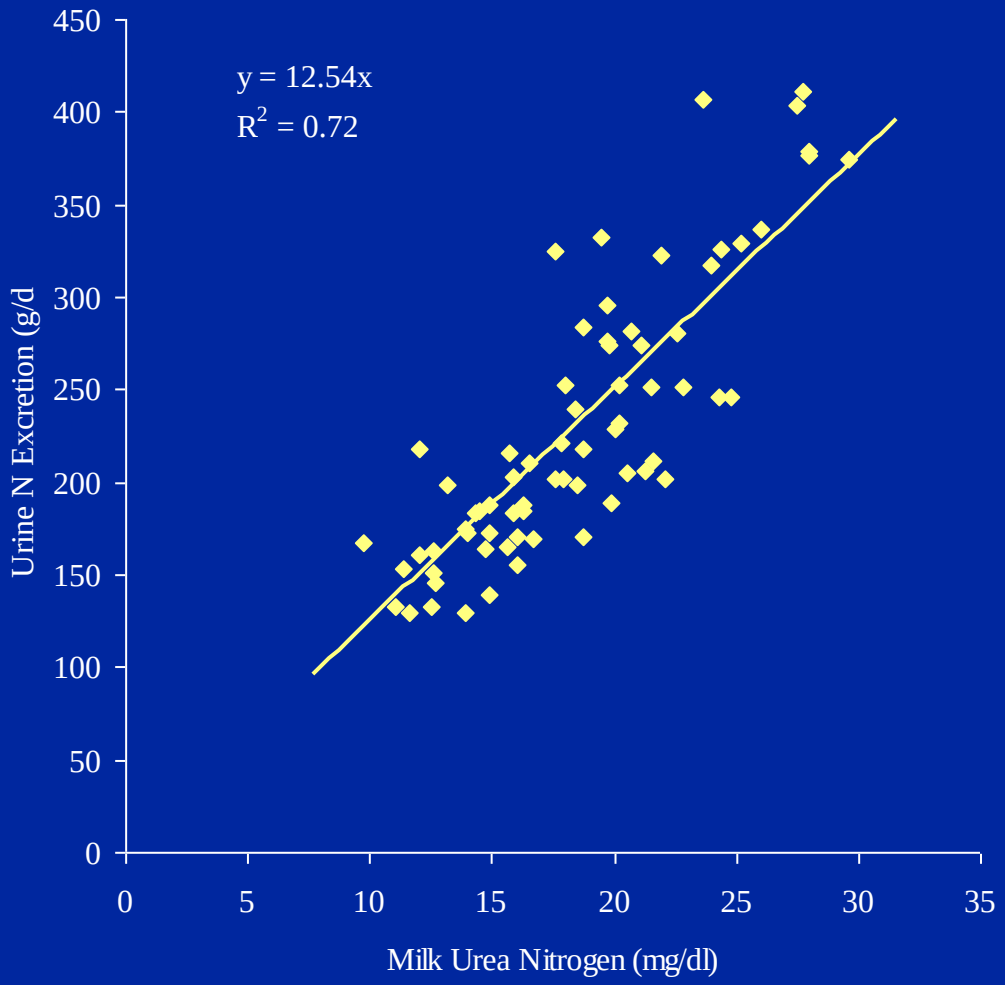


Kohn, et al., 1997. MD Nutrition Conference

Implications

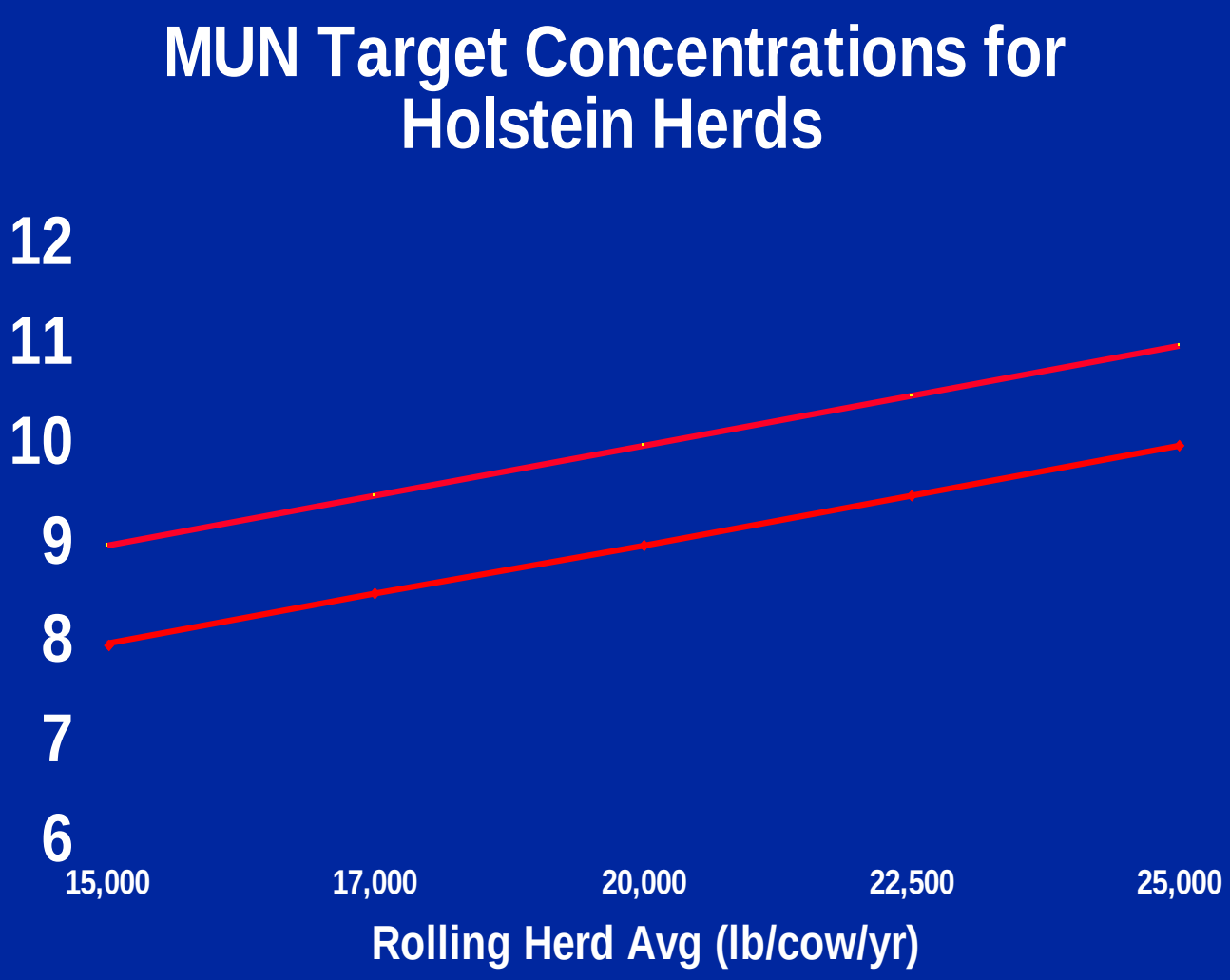
- Milk urea is proportional to blood urea.
- Milk urea is proportional to amount of excess amino acids and ammonia absorbed.
- High milk urea indicates that more than enough N was absorbed into the body.
- Low milk urea indicates that too little N was absorbed.

Urine N vs. MUN



Jonker, et al., 1998. J. Dairy Science

Target MUN



Kohn et al., 2002. J. Dairy Science

Lab Differences

- Foss 4000 NIRS is not as repeatable as wet chemistry or Foss 6000.
- After Sep. 17, 1998 MUN analyses were reduced about 4 units.

Project Goal

- Institutionalize MUN analysis in Maryland and Virginia (and the country).

Barriers to Use of MUN

- Inconvenience of sampling and analysis
- Inconsistent analysis of results
- Lack of understanding of MUN results
- Lack of incentive to decrease MUN

Participants

- **University of Maryland**
  - Coordination, Quality Control, Teaching, Trouble Shooting, Evaluation
- **Maryland Department of Agriculture**
  - Coordination
- **Virginia Tech**
  - Teaching, Trouble Shooting
- **Milk Cooperatives**
  - Information dissemination
- **Milk Analysis Laboratories**
  - Analysis

Methods

- **Presentations and Interviews**
  - Agents, Farmers, Nutritionists, NRCS, Coops
- **Contracts with co-ops and labs**
  - Routine measurements, routine reporting to farmers and coordinators
- **Laboratory upgrades and quality control**
- **Incentive Program**

Incentives

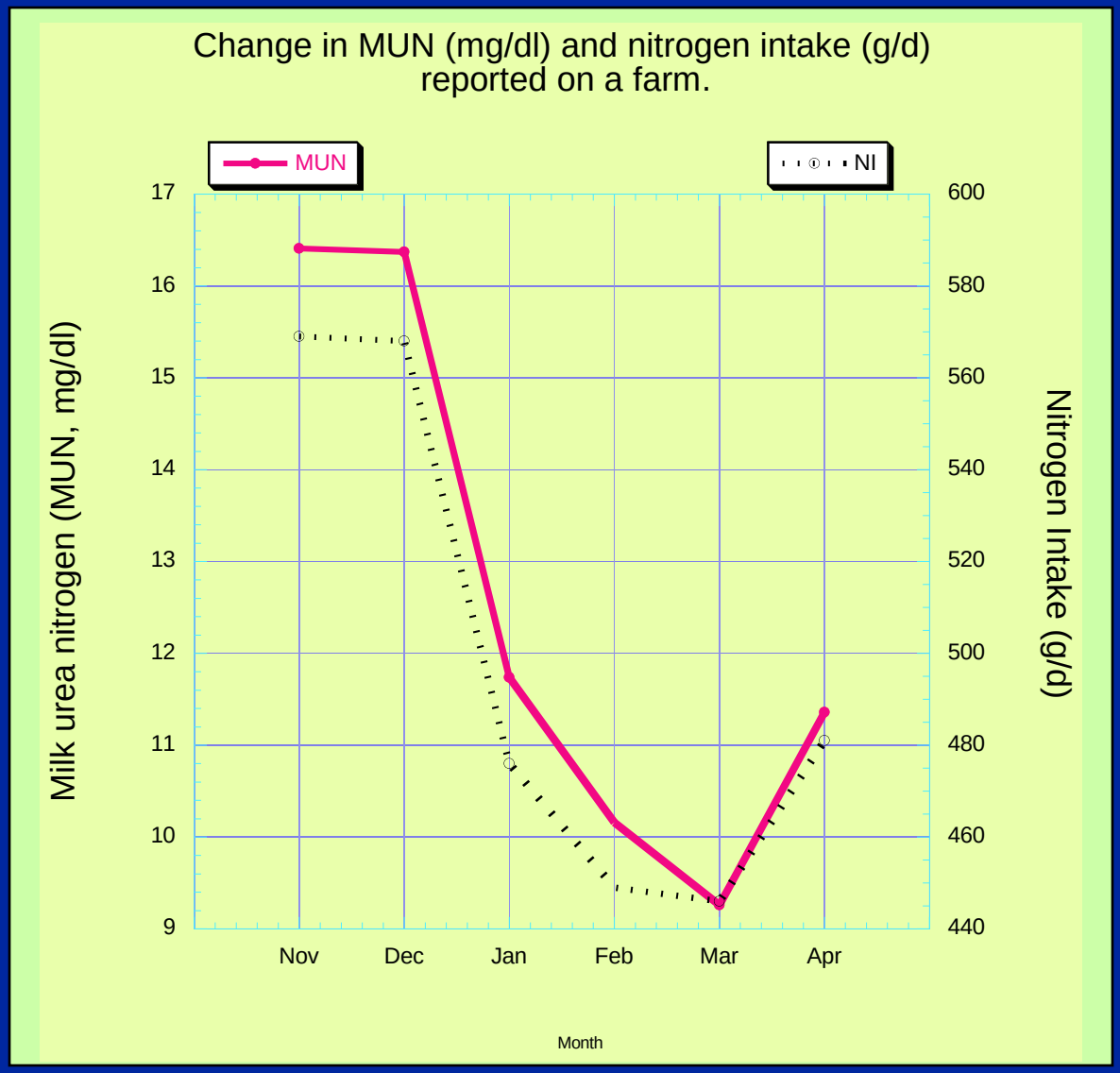
- Nominal payment ($100-150) for MUN below target (11 mg/dl) for 3 months
- Publication (with permission) of the names of the 10 top producers per county for high milk yield with low MUN.

Check List

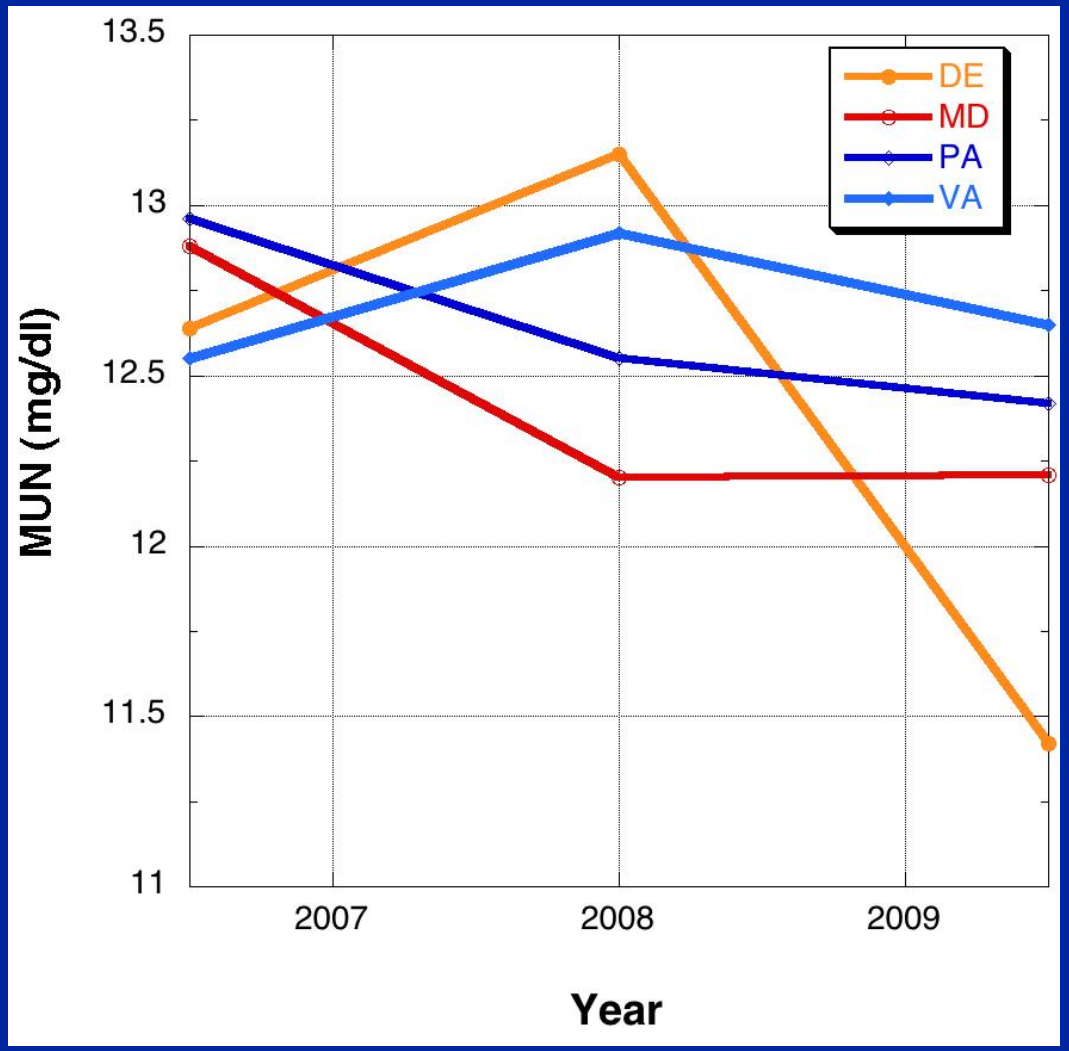
- ✓ Milk Production
- ✓ Feed intake
- ✓ Diet Formulation
- ✓ Feed Analysis
- ✓ Feed Digestibility
- ✓ Feeding Management
- ✓ Feeding Behavior

Best

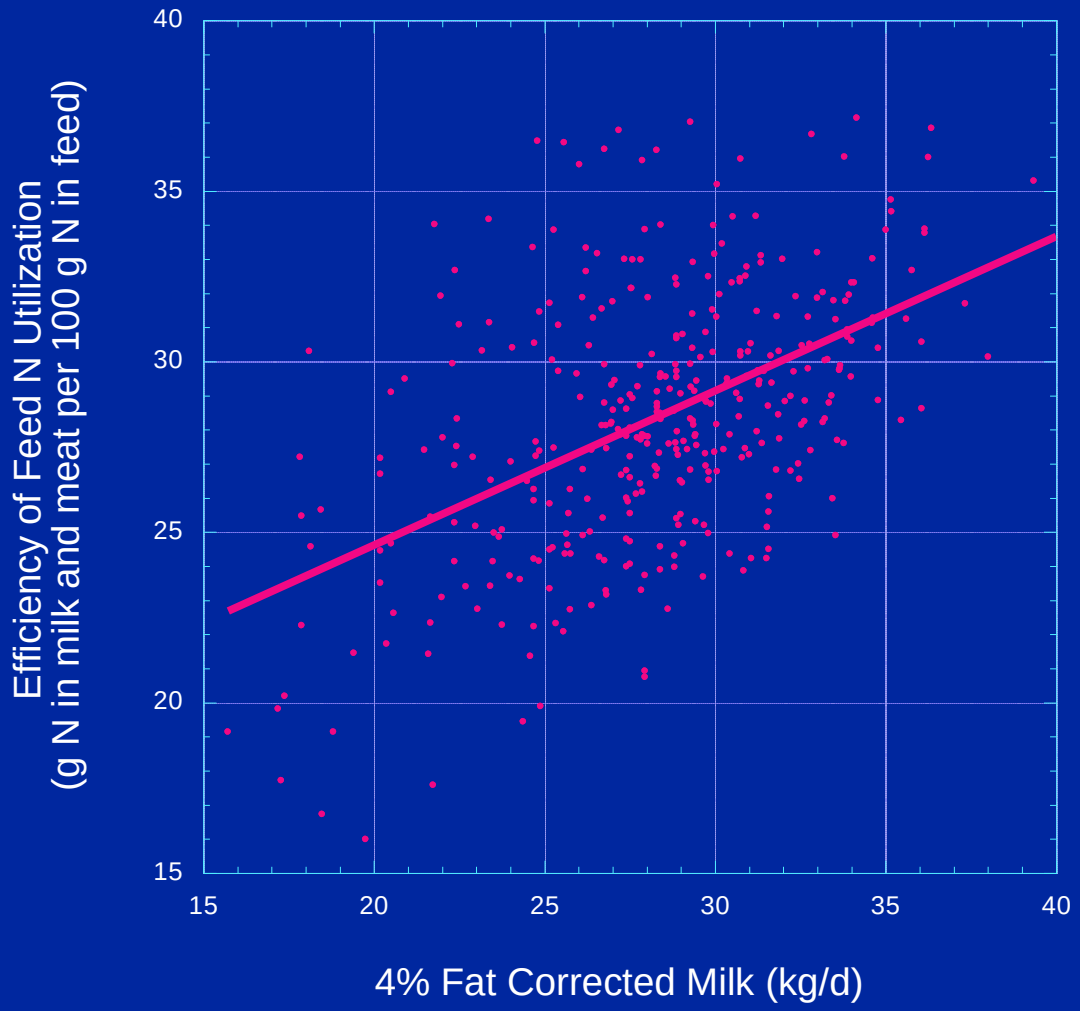
~~Typical~~ Results



Changes in MUN

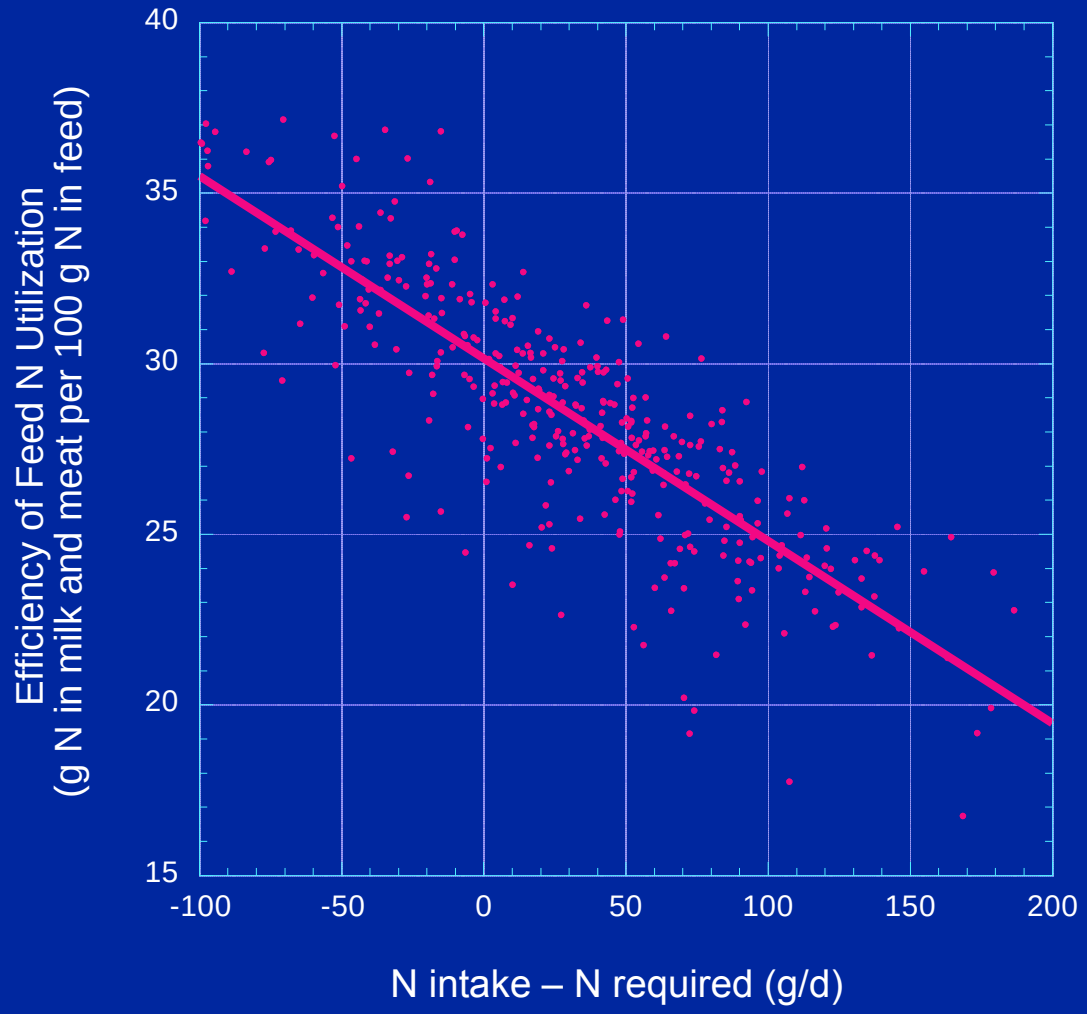


Effect of milk per cow on N utilization efficiency



Jonker, et al., 2002, J. Dairy Science

Effect of intake N on N utilization efficiency



Jonker, et al., 2002,
J. Dairy Science

Future

- Coops are continuing to conduct analyses and report results.
- Nutritionists have revised their CP feeding levels.
- MUN allows continued monitoring of the industry.
- MUN on some farms is still to high but it is difficult to to identify who they are.