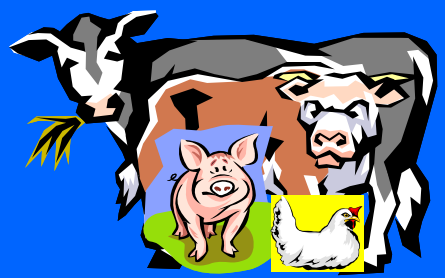
Introduction to Feeding Management, NRCS Comprehensive Nutrient Management Planning, and Whole Farm Balance

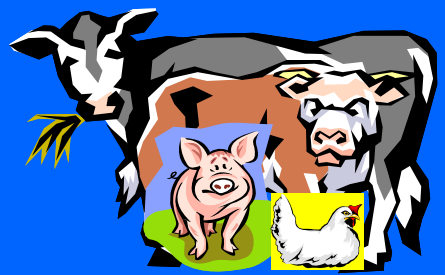
By Joe Harrison - WSU



WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

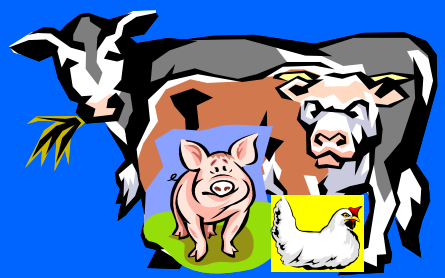
Presentation

-Feeding Management and Comprehensive Nutrient Management Planning
- Why does it matter……..
- Whole Farm Nutrient Management
- Take Home Message



In total, a CNMP includes:

1) Feed Management,
2) Manure and Wastewater Handling and Storage,
3) Nutrient Management,
4) Land Treatment,
5) Record Keeping, and
6) Other Manure and Wastewater Utilization Options



America Online - [National Planning Procedures Handbook | NRCS]

File Edit Print Window Sign Off Help

Mail Read Write | People IM Chat | Services Shop Internet | Settings AOL Help | Favorites My Favorites Calendar Radio

Show Channels | BACK FORWARD STOP RELOAD | http://www.nrcs.usda.gov/programs/afo/cnmp_guide | Go | Search | Keyword

Search

Enter Keywords GO

Programs

> Farm Bill

National Planning Procedures Handbook

Subpart B, Part 600.51
Draft Comprehensive Nutrient Management Planning Technical Guidance

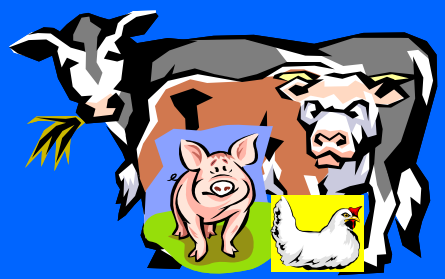
600.51 Definition of a Comprehensive Nutrient Management Plan (CNMP)

A CNMP is a conservation plan that is unique to animal feeding operations. It is a grouping of conservation practices and management activities which, when implemented as part of a conservation system, will help to ensure that both production and natural resource protection goals are achieved. A CNMP incorporates practices to utilize animal manure and organic by-products as a beneficial resource. A CNMP addresses natural resource concerns dealing with soil erosion, manure, and organic by-products and their potential impacts on water quality, which may derive from an AFO. A CNMP is developed to assist an AFO owner/operator in meeting all applicable local, tribal, State, and Federal water quality goals or regulations. For nutrient impaired stream segments or water bodies, additional management activities or conservation practices may be required to meet local, tribal, State, or Federal water quality goals or regulations.

CNMP must meet NRCS technical standards. For those elements included by Owner and/or operator in a CNMP for which NRCS currently does not maintain technical standards (i.e., feed management, vector control, air quality, etc.), producers should meet criteria established by Land Grant Universities, industry, or other technically qualified entities. Within each state, the NRCS State Conservationist has the authority to approve non-NRCS criteria established for use in the planning and implementation of CNMP elements.

Done

start | America Online - [Na... | 9:54 PM



WIN²ME - "Feed Management Education for the Agricultural Professional"

America Online - [National Planning Procedures Handbook | NRCS]

File Edit Print Window Sign Off Help

Mail People Services Settings Favorites

Read Write IM Chat Shop Internet AOL Help

See your favorite places. Drag heart icons here.

Show Channels BACK FORWARD STOP RELOAD http://www.nrcs.usda.gov/programs/afo/cnmp_guide_ Go Search Keyword

(e) Feed Management

Feed management activities may be used to reduce the nutrient content of manure that may result in less land being required to effectively utilize the manure. Feed management activities may be dealt with as a planning consideration and not as a requirement that addresses specific criteria; however, AFO owners/operators are encouraged to incorporate feed management as part of their nutrient management strategy. Specific infol1D.ation and recommendations should be obtained from the Cooperative State Research, Education, and Extension Service; Land Grant Universities; industry; the Agricultural Research Service; or professional societies such as the Federation of Animal Science Societies (FASS) or American Registry of Professional Animal (ARPAS); or other technically qualified entities.

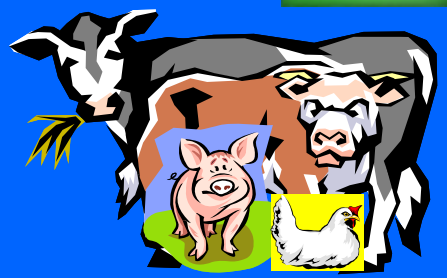
An example of the effective use of feed management is presented as follows:

> If a dairy cow is fed 0.04 percent above recommended levels of dietary phosphorus she will excrete an additional six pounds of phosphorus annually. F or a herd of 500 cows, this is an additional 3,000 pounds of phosphorus per year. In a single cropping system, corn silage is about 0.2 percent phosphorus on a dry matter basis. For a field yielding 30 tons of silage per acre, at 30 percent dry matter, this is 36 pounds of phosphorus in the crop. If an additional 3,000 pounds of phosphorus are recovered in manure it takes considerably more land for application if manure is applied on a phosphorus basis. " Dr. Deanne Meyer, Livestock Waste Management Specialist, Cooperative Extension, University of California.

Specific feed management activities to address nutrient reduction in manure may include phase feeding, amino acid supplemented low crude protein diets, or the use of low phytin phosphorus grain and enzymes, such as phytase or other additives.

Done

start America Online - [Na... Microsoft PowerPoint ... 9:57 PM



WIN²ME - "Feed Management Education for the Agricultural Professional"

America Online - [National Planning Procedures Handbook | NRCS]

File Edit Print Window Sign Off Help

Mail People Services Settings Favorites

Read Write IM Chat Shop Internet AOL Help My Favorites Calendar Radio

Show Channels BACK FORWARD STOP RELOAD http://www.nrcs.usda.gov/programs/afo/cnmp_guide Go Search Keyword

An example of the effective use of feed management is presented as follows:

If a dairy cow is fed 0.04 percent above recommended levels of dietary phosphorus she will excrete an additional six pounds of phosphorus annually. F or a herd of 500 cows, this is an additional 3,000 pounds of phosphorus per year. In a single cropping system, corn silage is about 0.2 percent phosphorus on a dry matter basis. For a field yielding 30 tons of silage per acre, at 30 percent dry matter, this is 36 pounds of phosphorus in the crop. If an additional 3,000 pounds of phosphorus are recovered in manure it takes considerably more land for application if manure is applied on a phosphorus basis. " Dr. Deanne Meyer, Livestock Waste Management Specialist, Cooperative Extension, University of California.

Specific feed management activities to address nutrient reduction in manure may include phase feeding, amino acid supplemented low crude protein diets, or the use of low phytin phosphorus grain and enzymes, such as phytase or other additives.

Feed management can be an effective approach to addressing excess nutrient production and should be encouraged; however, it also is recognized that feed management may not be a viable or acceptable alternative for all AFOs. A professional animal nutritionist should be consulted before making any recommendations associated with feed ration adjustment.

< Back to CNMP Technical Guidance Index

(f) Other Utilization Activities

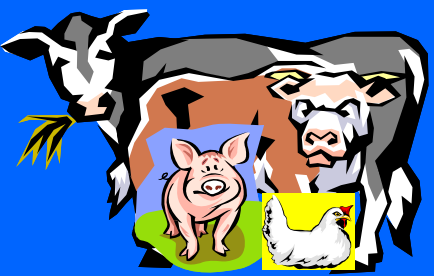
Done

start America Online - [Na... Microsoft PowerPoint ... 9:58 PM

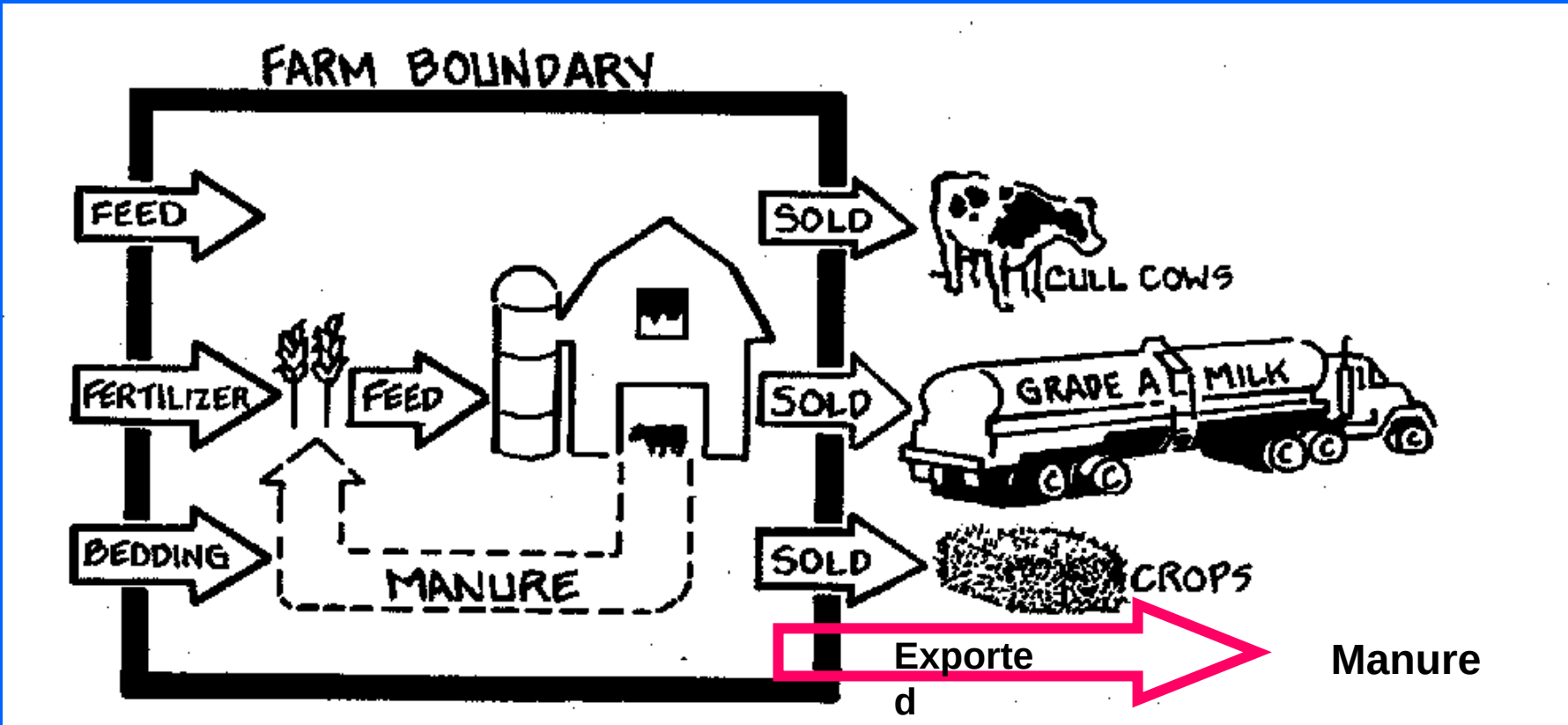
WIN²ME - "Feed Management Education for the Agricultural Professional"

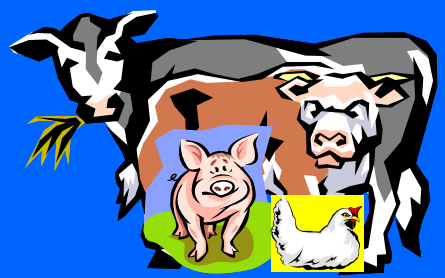
Factors that might be considered under the topic of feeding management include:

Ration formulation,
Ration evaluation (nutrient analyses by a lab),
Routine forage and grain analyses,
Adoption of silage best management practices,
Use of production enhancers (rBST for dairy),
Phase feeding,
Drinking water quality,
Bunk management,
Amino acid supplementation,
Low phytic acid corn, and
Enzymes.



Nutrient Management Needs to be considered at the Whole Farm Level and Beyond

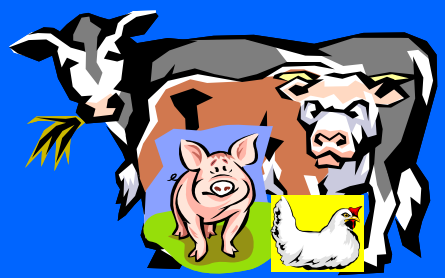




Most dairies are net importers of nutrients

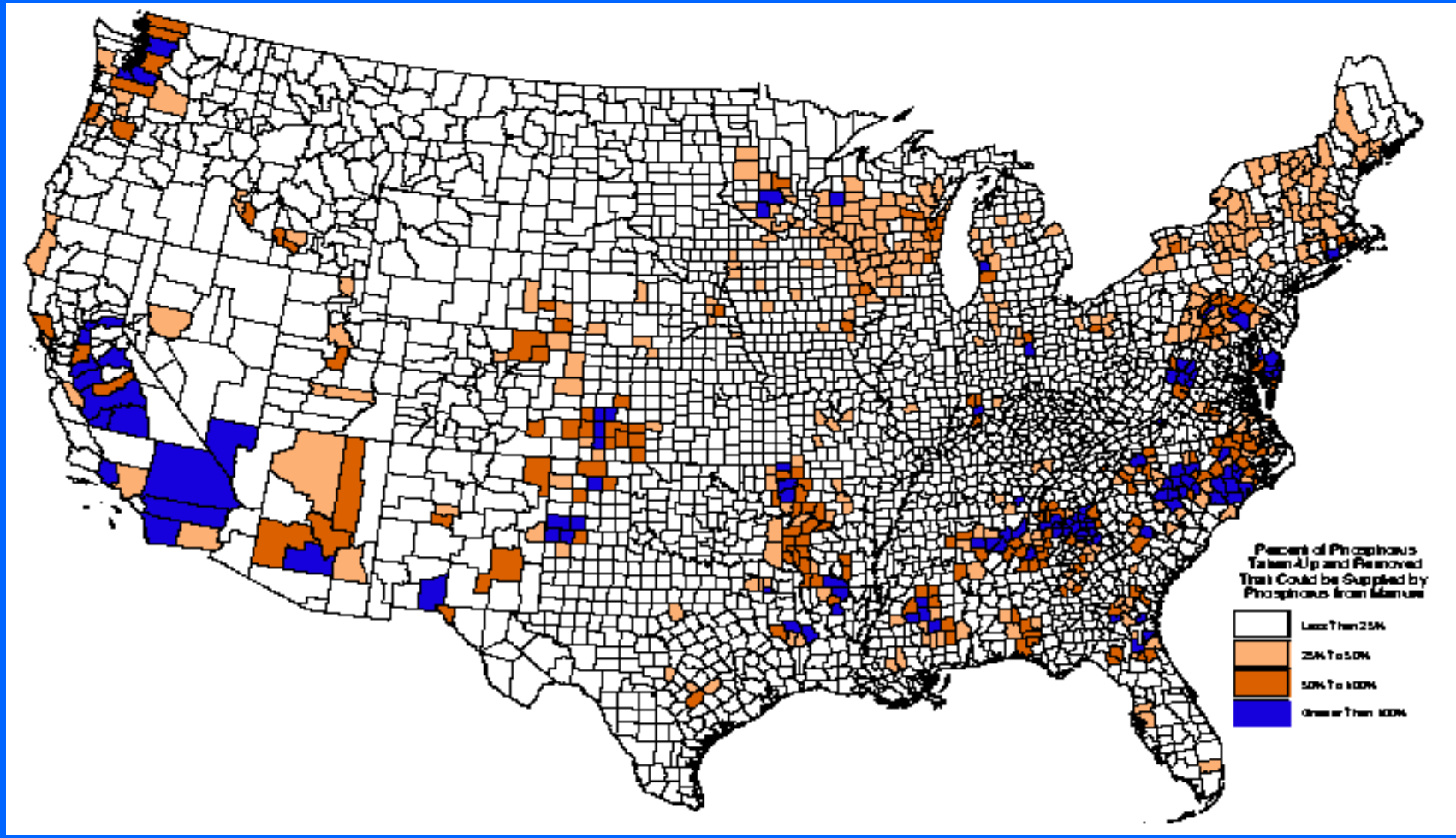
Table 1a. Changes in dairy farm and cow numbers, and the concentrate consumed for California from 1954 to 1987.

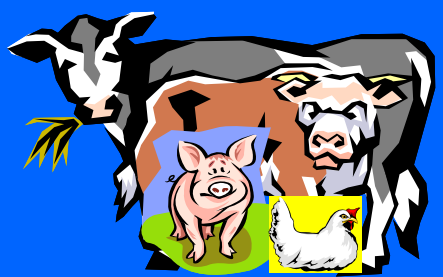
	California	
	1954	1987
No. dairy farms	34,031	3,631
Milk cows	790,730	1,070,366
Concentrate		
lb/yr per cow	1,898	7,541
lb/100 lb milk	24	42
lb/yr per farm	43,747	2,223,069



WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Manure P vs. Crop Land P Use





WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

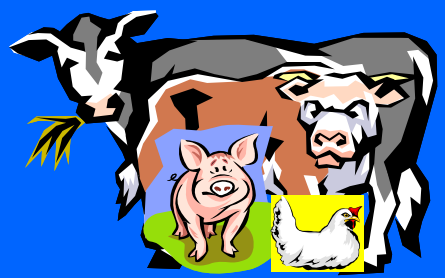
Phosphorus by Species

Swine - 31-37 % when diet P is .4 to .5%

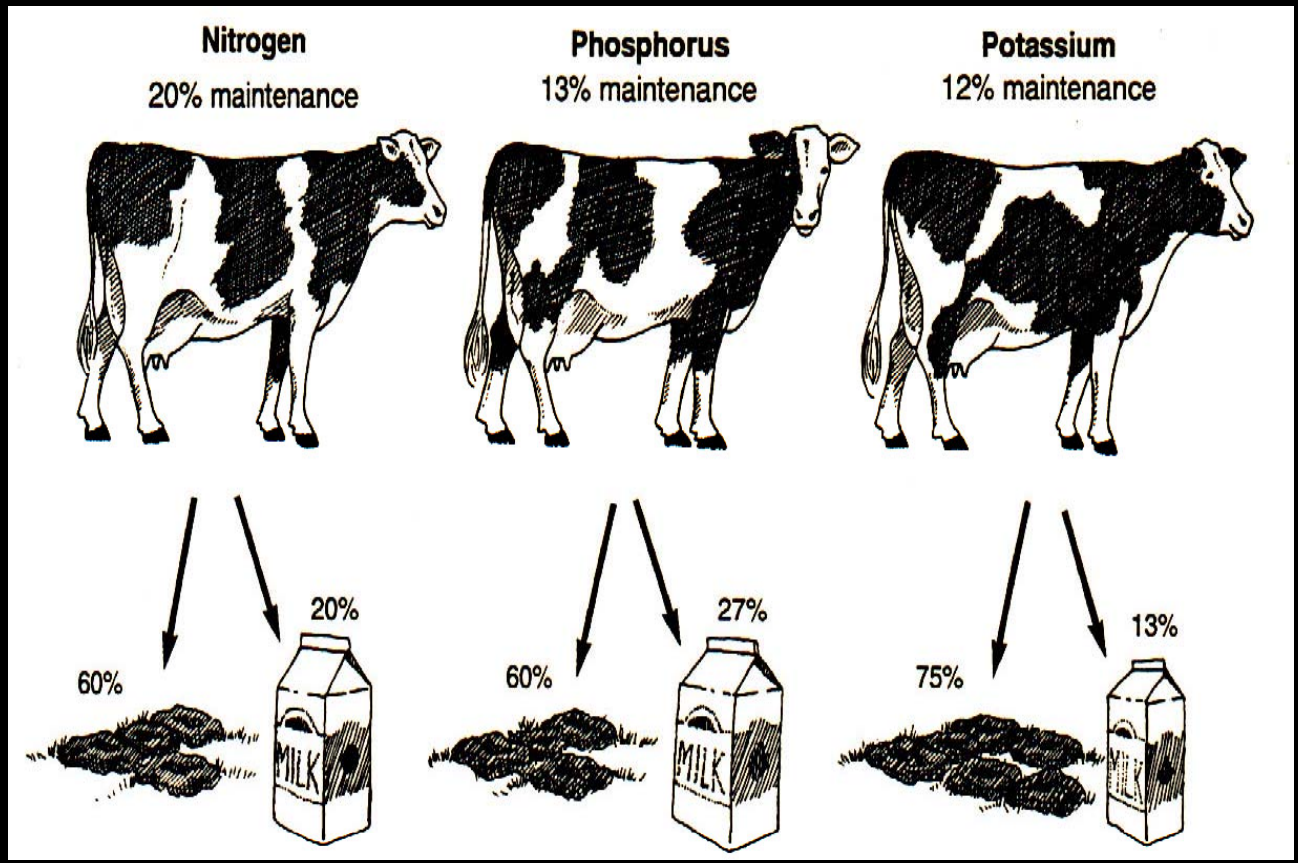
Laying Hen – 38 % retained

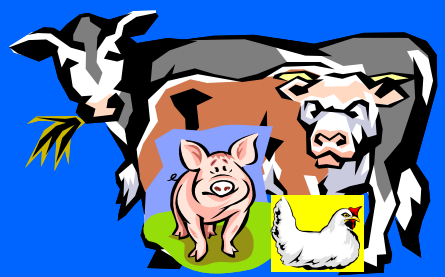
Finishing Beef Cow – 20 % retained

Dairy Cow – 27 % used for milk



WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

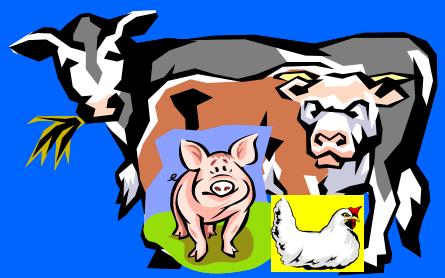




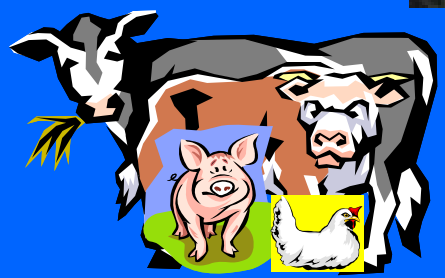
WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Phosphorus

Feeding at near 100 % of NRC recommendations can save ~ $1000 to $1400 per 100 cows per year



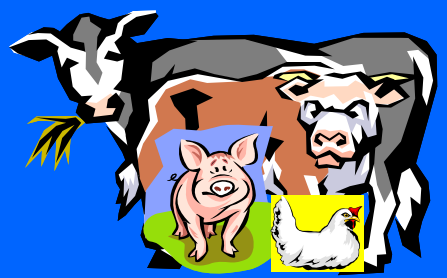
WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"



WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

WSU/Werkhoven Study

Can we realistically reduce Protein Imports to the Farm In a High Producing Herd?



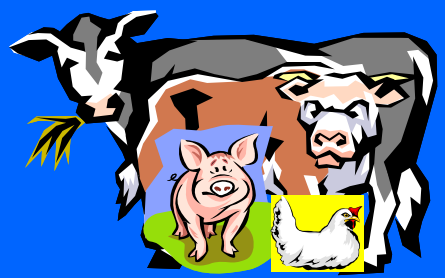
WIN²ME - Western Integrated Nutrition and
Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Approach

Reformulate the general herd Diet to be balanced for estimated Needs for amino acids (Met and Lys)

Reduced CP by ~ 1 %

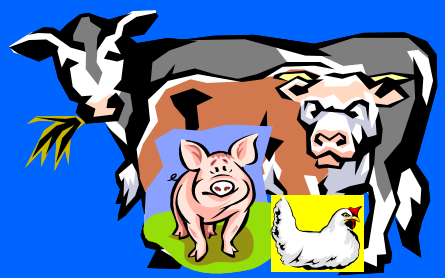
Increased Feed Cost Slightly - $0.06



WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Trial Response

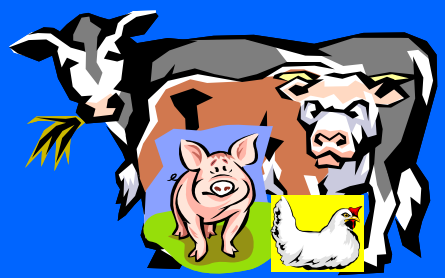
Item	Control	Experimental
DMI, lb	56.7	55.2
Milk, lb	99.9	101.9
Milk fat, lb	3.26	3.23
Milk protein, lb	2.88	2.95
MUN, mg/dl	17.5	14.5



WIN²ME - Western Integrated Nutrition and
Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Nitrogen Performance

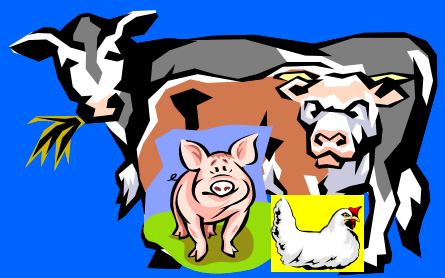
Nitrogen Intake	- 7.4%
Milk Nitrogen	+2.4%
Predicted Urinary N	- 17.3%
Predicted Fecal N	- 5.0%



WIN²ME - Western Integrated Nutrition and
Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Economic Evaluation

Item	Control	Experimental
Feed Cost, $/day	4.82	4.
Milk Income, $/day	11.92	12.10
IOFC, $/day/cow	7.10	7.22



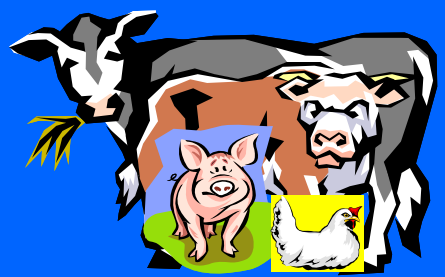
WIN²ME - Western Integrated Nutrition and
Nutrient Management Education
"Feed Management Education for the Agricultural Professional"

Take Home Message

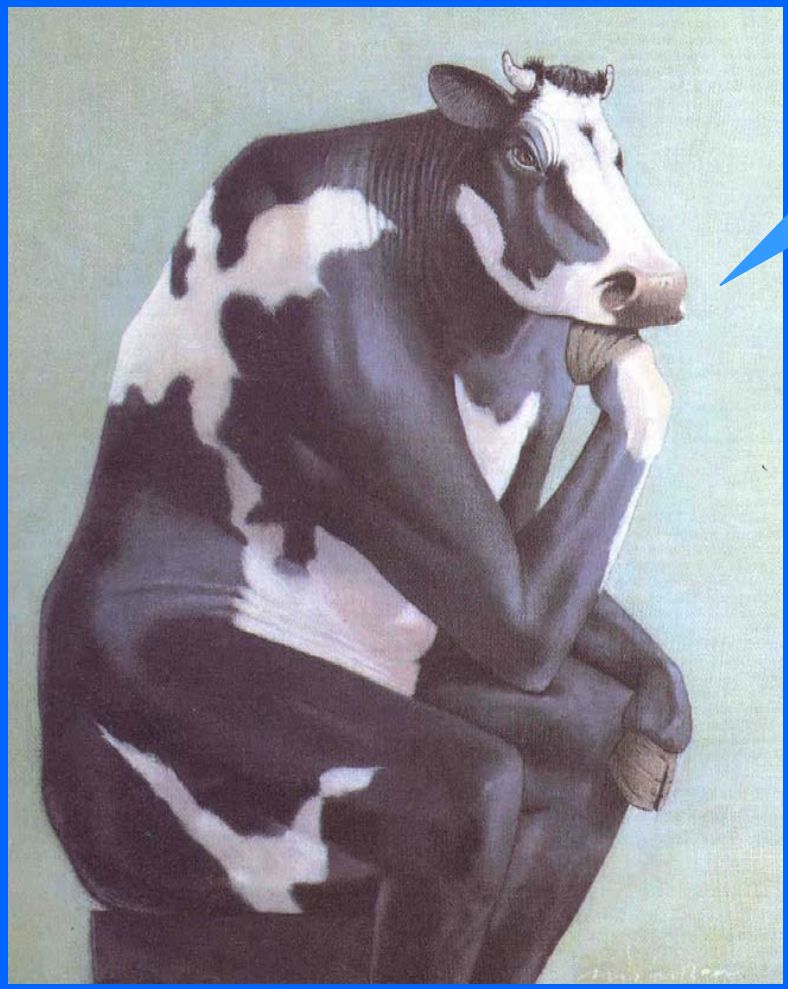
Nutrient management has and will continue to be legislatively mandated

Real cost savings can be realized by understanding the "system" and its components

Make it a team effort



WIN²ME - Western Integrated Nutrition and Nutrient Management Education
"Feed Management Education for the Agricultural Professional""



Any Questions