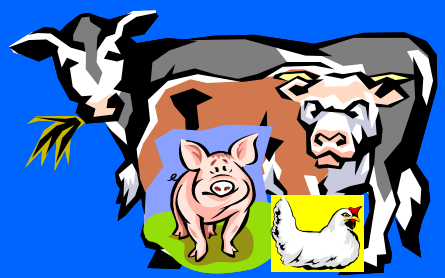
Nutrient Management at the Whole Farm Level

By Joe Harrison - WSU



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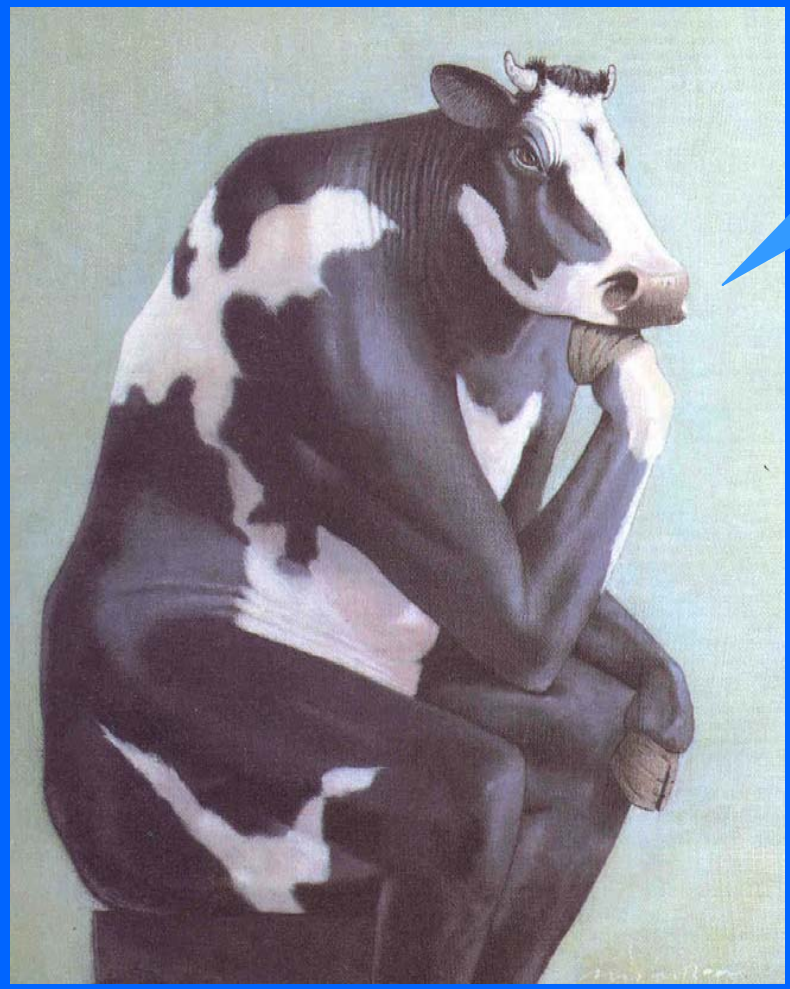
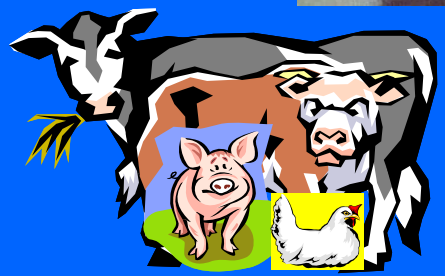
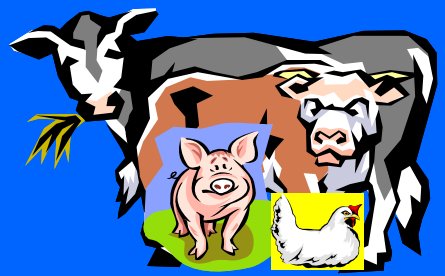
Phosphorus Balance at the Whole Farm Level



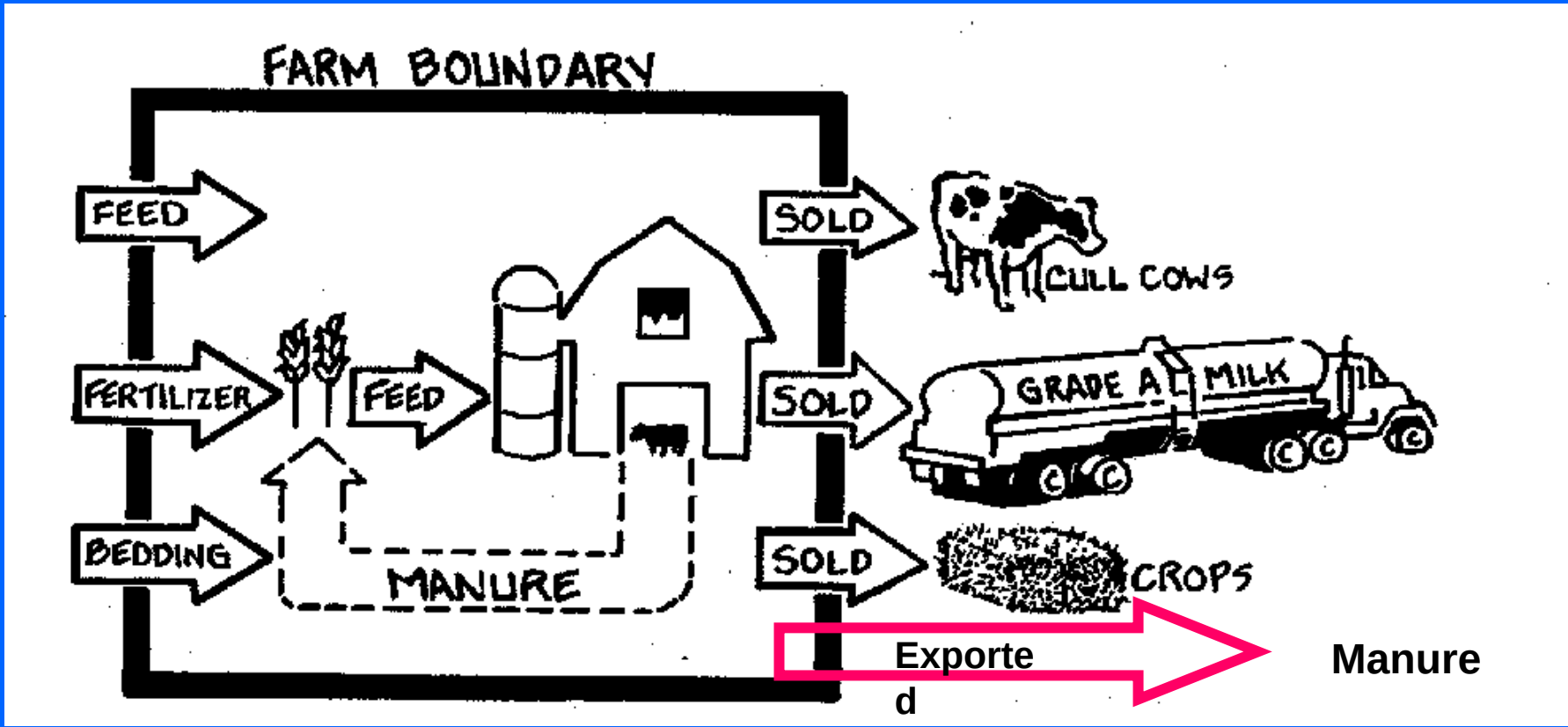


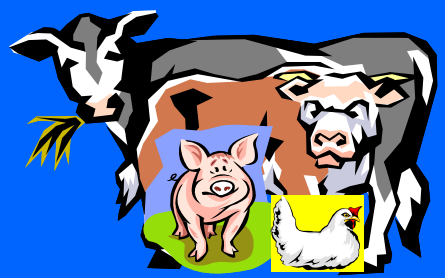
Presentation

- Whole Farm Nutrient Management
- History
- Phosphorus, what we know
- Take Home Message



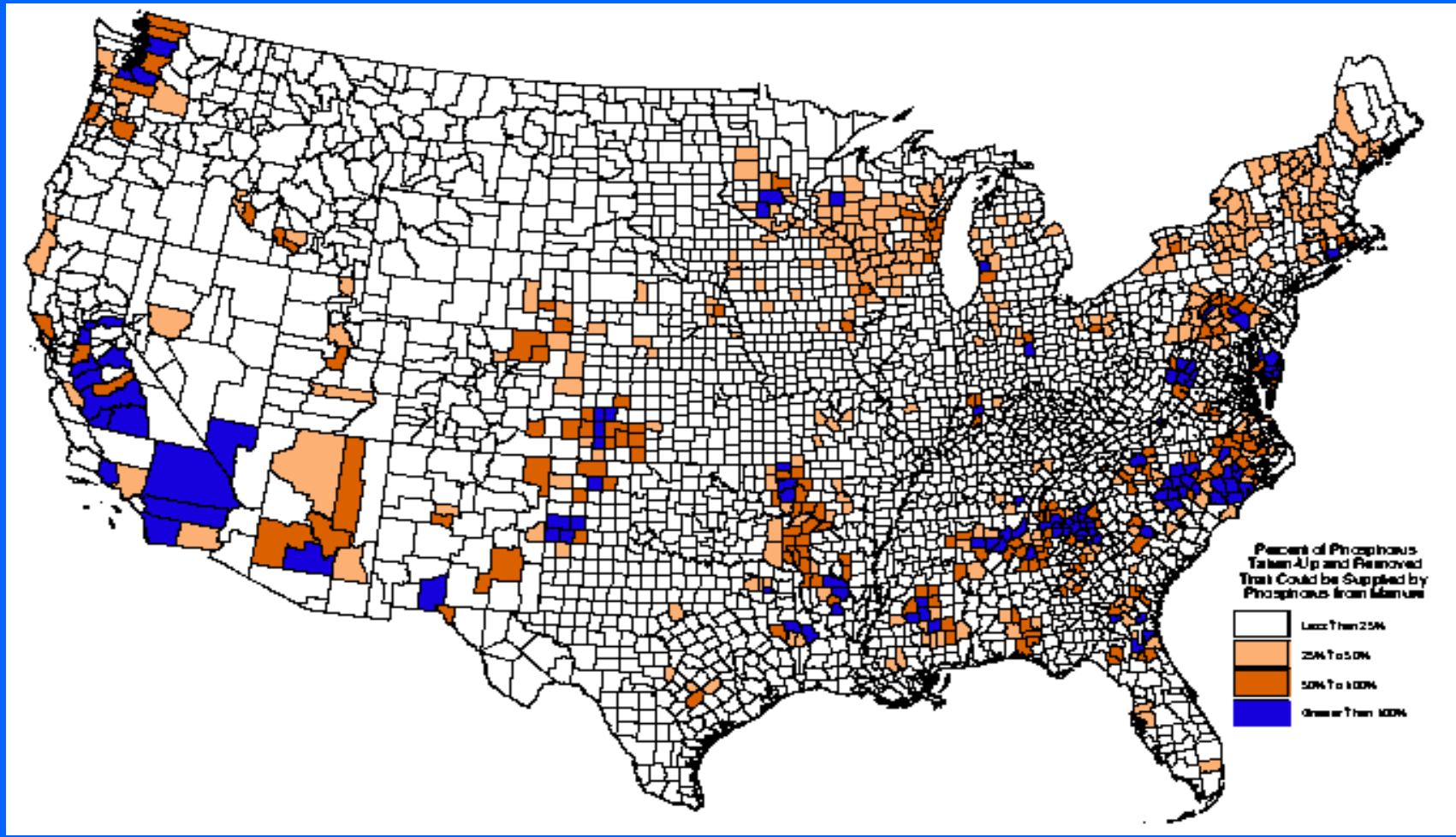
Nutrient Management Needs to be considered at the Whole Farm Level and Beyond

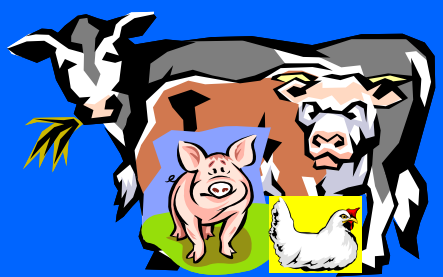




Most dairies are net importers of nutrients

Manure P vs. Crop Land P Use





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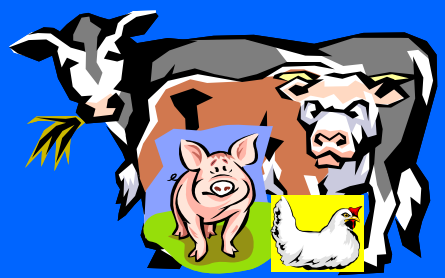
Phosphorus by Species

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



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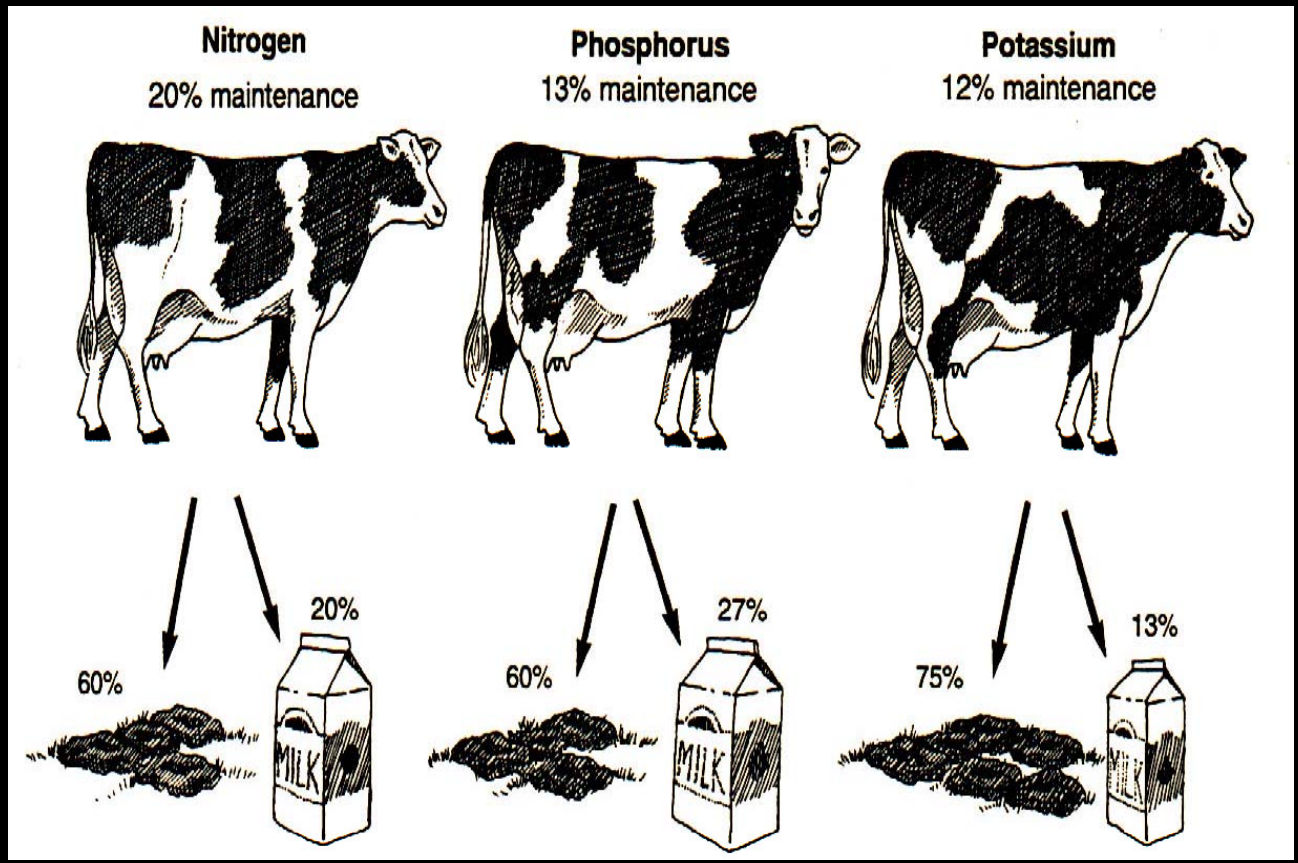

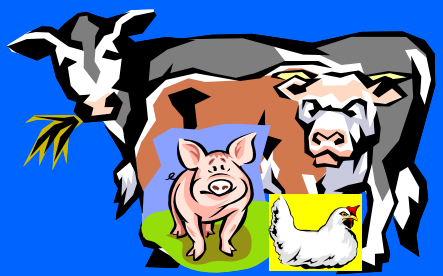

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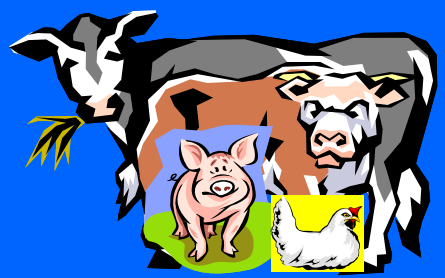
Table 1a. Changes in dairy farm and cow numbers, and the concentrate consumed for California from 1954 to 1987.

	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



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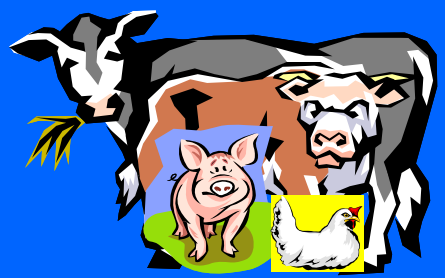
Phosphorus

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



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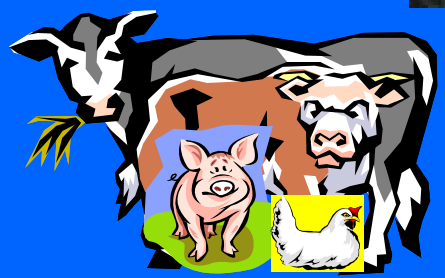

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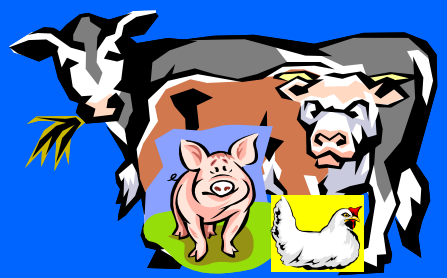
Whole Farm Nutrient Management On WA State Dairy Farms

Item	40 cows	380 cows	418 cows	994cows
Acres	55	137	205	571
Milk, lbs	13,100	28,770	19,800	25,100
P Imported tons	1	13	21	35
Exported tons	.4	6.3	5.1	16.7



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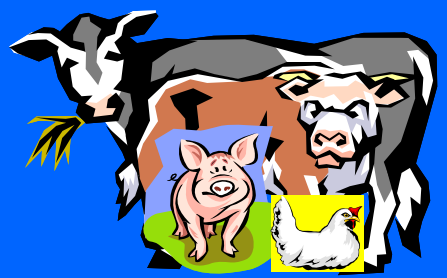
Phosphorus and Forages

Forage	% P	Pounds P/acre
Alfalfa hay	0.31	43
Alfalfa silage	0.37	52
Grass Silage	0.45	63
Corn Silage	0.23	32



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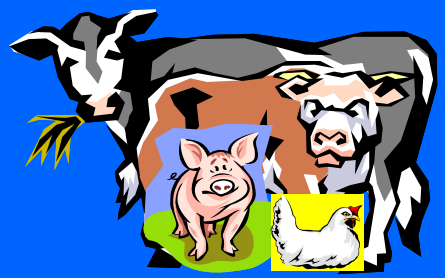
Take Home Message

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



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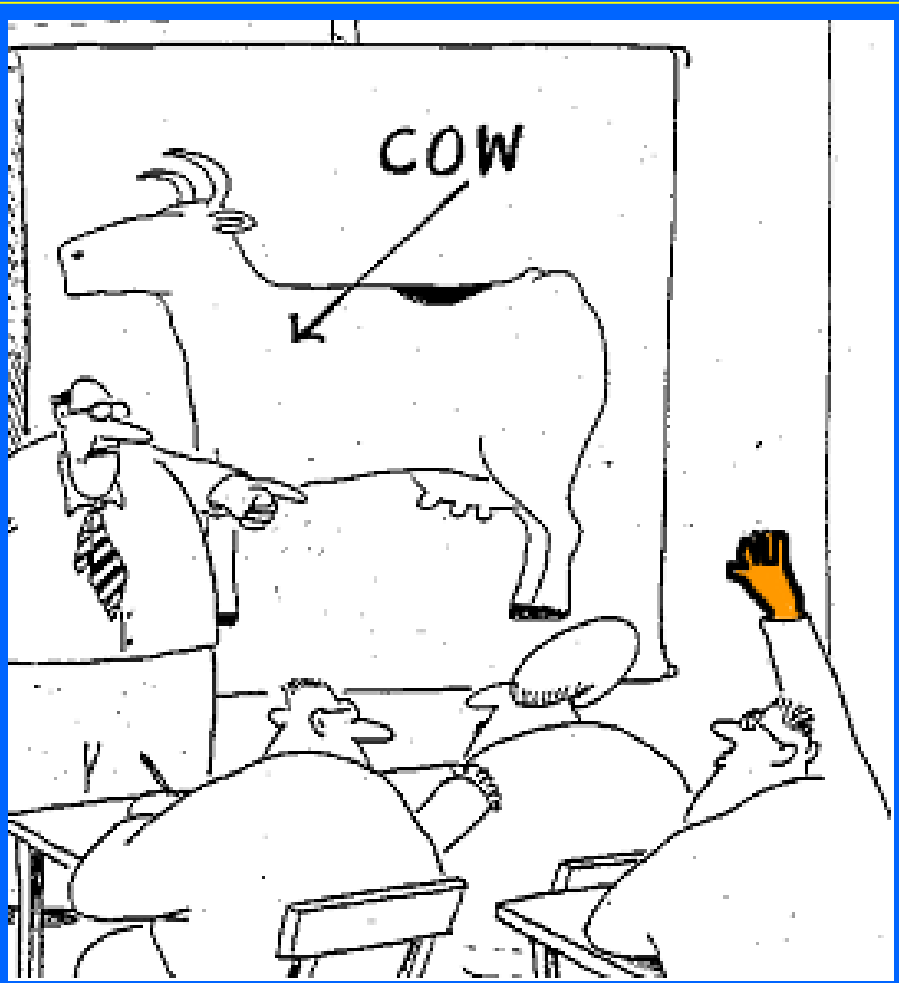
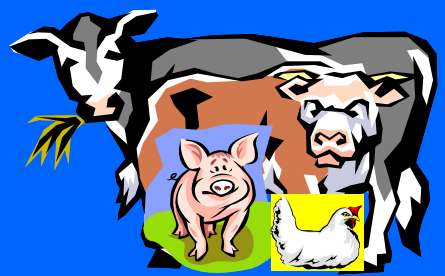
"YES . . . I BELIEVE THERE'S A QUESTION THERE IN THE BACK."





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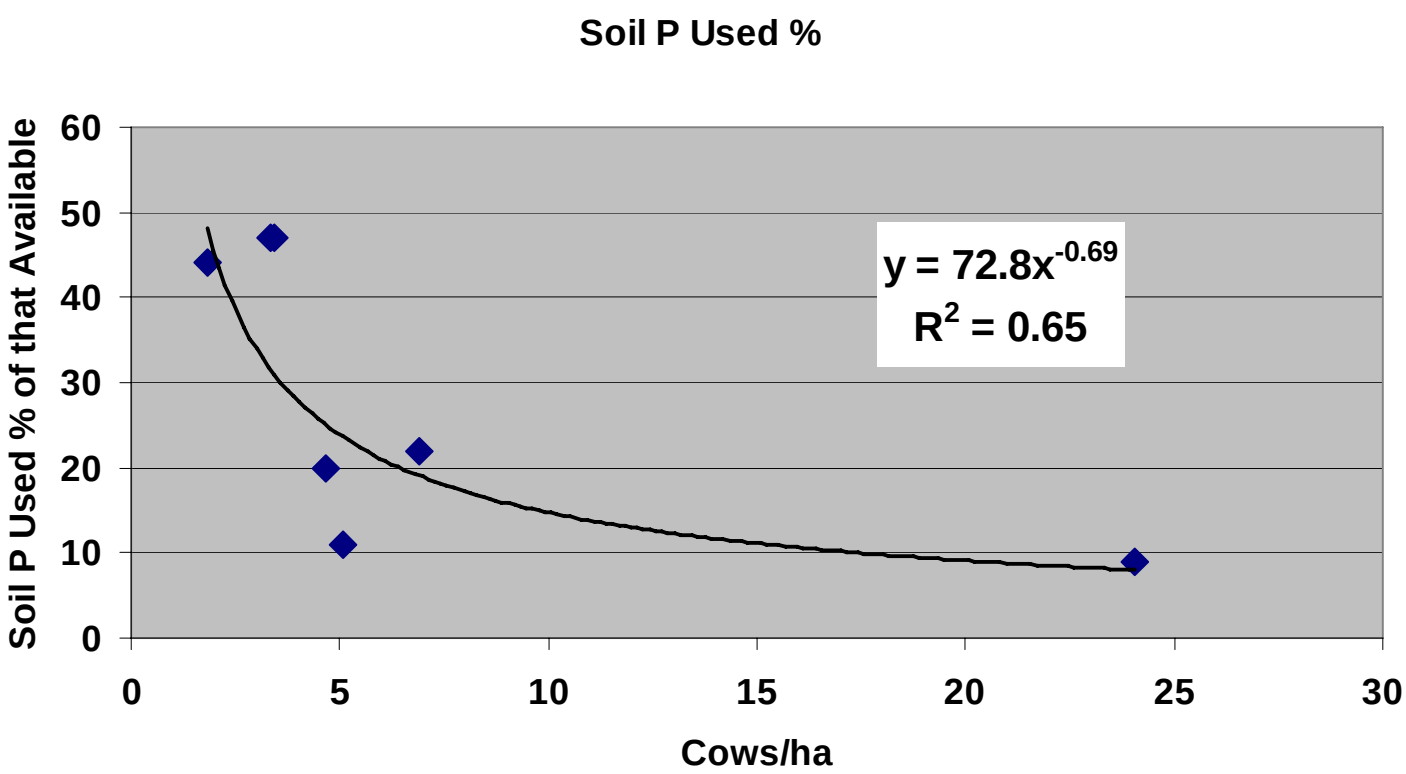
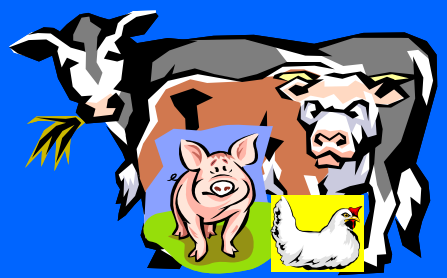


FIGURE 4. Relationship between cows/ha and percent of soil P used over that available for crop growth.



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