

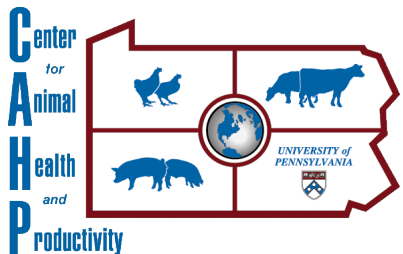
Evaluating A Ration for Transition Cow Using UPenn Dairy Ration Analyzer

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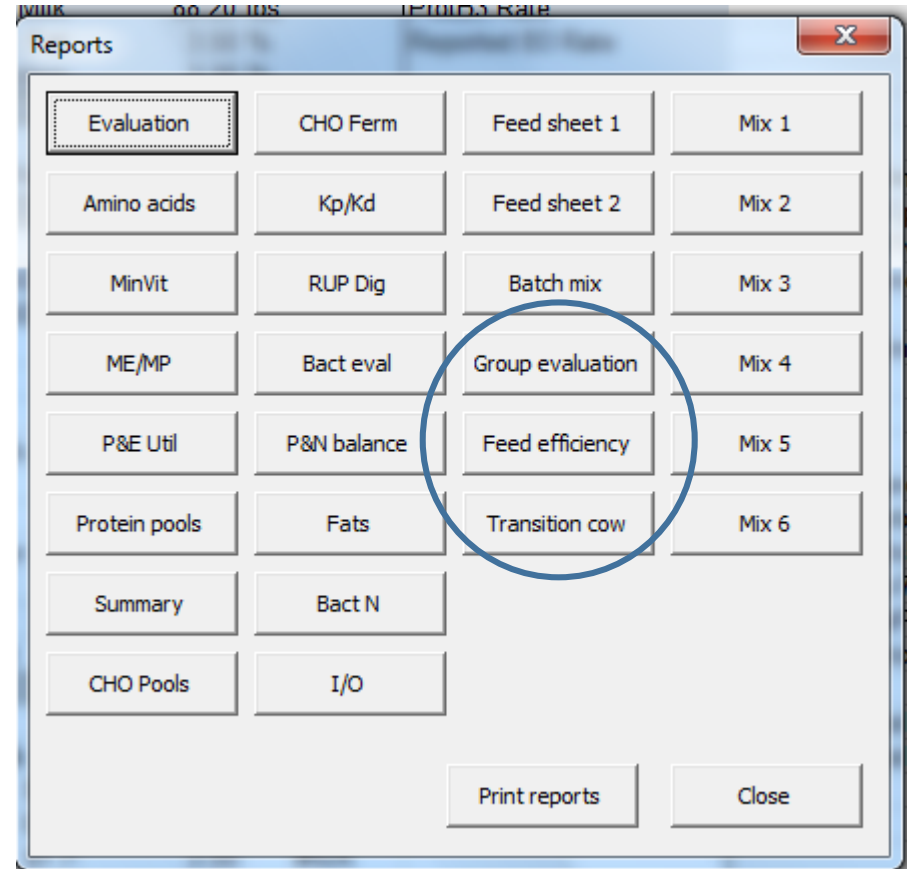


UPenn Dairy Ration Analyzer
University of Pennsylvania



Overview

- Ration has been formulated
- You can evaluate
 - Group performance
 - Shaker box suggestion
 - If dry cow – risk of MF



Shaker Box Suggestions

- Reports box – “Feed Efficiency” button
- Based on meta-analysis examining peNDF and particle size
- Several models examined and used
- Can evaluate an existing TMR for influence on DMI, milk production, fat and protein content and FE

Feed Efficiency													
Inputs Ration											0		
Animal	605	lbs	Milk:	40	lbs	Fat:	3.5	True protei	3.1	DIM	100	cost, \$	per DM
DMI	21.7719		Milk Energ	27.836	ECM3.5	40.2254	FE	1.84759	Nel diet	1.68755	mcal/kg	6.28493	0.28867
Diet Composition													
Forage	61.1786	1				sem		Range					
NDF	32.9017	1	Top		8.61636	3.53		7.02876	10.204				
Hay_propfor	0.51753	1	Middle		45.4374	2.06		41.3998	49.475				
Silage_propfor	11.6513	1	Pan		45.9462	2.87		51.5714	40.321				
CSG_Propfor	87.8311	1	Top and Middle		54.0538	2.87		48.4286	59.679				
CP	17.364	1											
								100	100				
Influence on Production													
	Pred 1	Pred 2	Pred 3		screens two			compaision					
					pred 1	pred 2	pred 3	avg	based on above				
FE	1.57622	1.58834	1.59135	top	9.31141	9.3537	9.36312	9.34274	8.61636				
MilkYield	35.11	35.1592	34.9985	Mid	44.1581	44.2153	44.2295	44.201	45.4374				
DMI	23.9517	21.4196	23.6625	top_mid	53.4695	53.569	53.5926	53.5437	54.0538				
Fat%	3.409	3.49652	3.51652	pan	46.5305	46.431	46.4074	46.4563	45.9462				
Protein %	2.94764	2.92661	2.94257										
Milk	0.87775	0.87898	0.87496										
DMI	1.10012	0.98382	1.08684										
Fat%	0.974	0.999	1.00472										
Prot%	0.95085	0.94407	0.94922										

Some Calculations Based on Inputs /kg basis Predicted Shaker box

Possible Production influences

Feed Efficiency													
Inputs Ration												0	
Animal	605	lbs	Milk:	40	lbs	Fat:	3.5	True protei	3.1	DIM	100	cost, \$	per DM
DMI	21.7719		Milk Energ	27.836	ECM3.5	40.2254	FE	1.84759	Nel diet	1.68755	mcal/kg	6.28493	0.28867
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CP	17.364	1											
								100	100				

The optimal proportions of the shaker box are predicted with SEM of prediction and ranges

TOP	8.6%	3.53	7.03 to 10.204%
Middle	45.4	2.06	41.4 to 49.5%
Pan	45.9%	2.87	51.6% to 40.3%
Top and middle			

Note: this is based on the three boxes (19 mm, 9 mm and pan, the pan would include the 1.18 mm and pan for the four sieve box)

We found the top two sieves were the most important drivers of chewing, milk fat, FE, so if top sieve is below prediction Focus on the top + middle total

Diet Composition									
Forage	61.1786	1			sem			Range	
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CP	17.364	1							
								100	100
Influence on Production					screens two			compaison	
	Pred 1	Pred 2	Pred 3		pred 1	pred 2	pred 3	avg	based on above
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Milk	0.87775	0.87898	0.87496						
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Fat%	0.974	0.999	1.00472						
Prot%	0.95085	0.94407	0.94922						

Be cautious in interpreting this section – it attempts to examine several models interacting with FE predictions. The FE based on input milk and predicted DMI is 1.847 (second row on sheet, not seen on this screen)
 FE predicted based on diet inputs from “Diet Composition” are lower; this then looks at how this may influence shaker box proportions, milk production, DMI, fat and protein. The three predictions incorporate FE, forage, DIM and predicted top and middle screens from the section above, and then adjust shaker box; it is convoluted. Based on diet and DIM of 100 days, milk will be less than 40 kg (88 lbs) and be closer to 77 lbs, fat will be close to 3.5 and protein lower than input. This section needs significant validation from your observations in the field!!

Evaluation section

Observed Data from Farm				Sieve Data				TMR Information and Group					
Influence on Production				weight	%								
	Pred 1	Pred 2	Pred 3	top	Middle	Screen three	Pan	Total					
FE	1.48754	1.53115	1.49569	15.09	89.89	0.00	149.58	254.56	5.93	35.31	0.00	58.76	22.6799
MilkYield	35.0341	35.1299	35.062						Forage	NDF	CP	Milk, kg	DIM, d
DMI	23.4639	21.9106	22.9797										
Fat%	3.44681	3.46765	3.46522										
Protein %	3.02293	3.02453	3.03448										
Milk	0.87585	0.87825	0.87655										
DMI	1.07772	1.00637	1.05548										
Fat%	0.9848	0.99076	0.99006										
Prot%	0.97514	0.97566	0.97886										

You go to a farm

Collect a TMR

Run a shaker box

You have data on

Top

Middle (9 mm + 1.18 mm)

Pan

Possibly you also have

Information on % forage in
Ration, NDF and CP

Milk production for the group

DMI and DIM

In the “blue” columns you input the amounts on each sieve; it calculates proportions

In the right hand column you enter the information if you have it

The three columns on the left correspond to how much data you have

Pred 1 uses only the shaker box data and DIM to predict FE and affects on DMI, milk, fat and protein

Pred 2 uses only DIM and % forage to predict FE and affects on DMI, milk, fat and protein

Pred 3 uses DIM, % forage, and shaker box data to predict FE and affects on DMI, milk, fat and protein

The proportions section (bottom area) then compares to inputs on right

Feed Efficiency Report

- This is first attempt to actually predict proportions based on ration
- Secondly predict observed distribution on FE and production