

( )

\*

( / / : / / : )

×

/

(P< / )

(P< / )

(P< / )

:

(Mooney &

.Allen, 1997)

pH

.(Grant et al., 1990; Teimouri Yansari et al., 2004)

.(NRC, 2001)

(1997) Grant .

Mertens .(Mertens, 1997)  
(PeNDF) (1997)

pH

Poppi et al. . (1985)

Mertens . / (1997)

)  
± ±  
( / ±  
×  
( )

.(Firkins, 1997)

(2004) Kaps & Lamberson

.(Akinyode et al., 2000)

pH

(Hsu et al., 1987;  
Akinyode et al., 2000; Teimouri Yansari et al.,  
(1994) Weidner & Grant .2004)

/

( )  
( )  
( )

pH

(1997) Mooney & Allen

(Grant et al., 1990; Shaver et al., 1988) CPM-Dairy  
 ( ) ( )

(1998) SAS  

$$y_{ijkl} = \mu + A_i + B_j + AB_{ij} + P_k + cow_l + e_{ijkl}$$

(i = ) :  $y_{ijkl}$  AOAC  
 :  $\mu$  (NDF) (1990)  
 :  $A_i$  Van Soest et al. (ADF) (1991)  
 :  $B_j$

(j = ) :  $AB_{ij}$

(k = ) :  $P_k$

(l = ... ) :  $Cow_l$

:  $e_{ijkl}$

PDIFF

P < /

/	(%)
/	(%)
/	(%)
/	(%) NDF
/	(%) ADF
/	(%)
/	(%)
/	(%)

(Kononoff et al., 2003)

( )

(2001) ASAE

PeNDF % = (DM % >19 mm × NDF % >19 mm)  
 + (DM % >8 mm × NDF % >8 mm) +  
 (DM % >1.18 mm × NDF % >1.18 mm)

(P < / )

(P < / )

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1. Cornell Pennsylvania Miner Dairy Software  
 2. Pennsylvania Particle Size Separator



... :

I	APS	FS	SEM					
( )								
/	*	/	/	/	/	/	/	<
/	**	**	/	/	/	/	/	
/	/	/	/	/	/	/	/	/
/	**	**	/	/	/	/	/	< /
/	**	/	/	/	/	/	/	Xgm
/	/	/	/	/	/	/	/	Sgm
( )								
/	*	**	/	/	/	/	/	<
/				/	/	/	/	
/				/	/	/	/	/
/	*	**	/	/	/	/	/	( )

: : : :  
 :FS × APS :I :APS :FS  
 . / : \*\* / :\*

Kononoff & Heinrichs

(2000) Akinyode et al. (2003)

(Grant et al.,1990;

Shaver et al., 1988; Teimouri Yansari et al., 2004)

(Akinyode et al., 2000; Kononoff & Heinrichs, 2003)

.( )

.(P< / )

(2004) Teimouri Yansari et al. (1990) Grant et al.

(1999) Le Liboux & Peyraud .

Beauchemin et al. .

(1997)

( / )

(Soita et al., 2000)

.(P< / )

(1990) Grant et al.

(2004) Teimouri Yansari et al.

.(P= / )

( / )

( $P < /$  )

(Clark & Armentano 1997; Kononoff &  
.Heinrichs, 2003; Mooney & Allen, 1997)  
(2003) Kononoff & Heinrichs

I	APS	FS	SEM				( )
/	/	/	/	/	/	/	( )
/	/	/	/	/	/	/	( )
/	/	/	/	/	/	/	(%)
/	/	/	/	/	/	/	(%)
/	/	/	/	/	/	/	( )

: FS × APS      : I      : APS      : FS  
:FCM

I	APS	FS	SEM				
/	/	/	/	/	/	/	
/	*	**	/	/	/	/	
*	*	**	/	/	/	/	NDF
/	/	/	/	/	/	/	
/	/	/	/	/	/	/	
/	/	**	/	/	/	/	NDF
/	/	/	/	/	/	/	
/	*	*	/	/	/	/	
/	*	**	/	/	/	/	NDF

: FS × APS      : I      : APS      : FS  
: \*\* / :\*

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