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(P< /)

(P< /)

(P< /)

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(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)

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.(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)

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pH

(1997) Mooney & Allen

(Grant et al.,

.1990; Shaver et al., 1988)

CPM-Dairy

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(1998) SAS

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

: y_{ijkl}

: μ

($i =$)

: A_i

: B_j

($j =$)

: AB_{ij}

($k =$)

: P_k

($l =$...)

: Cow_l

: e_{ijkl}

PDIFF

$P < /$

AOAC

(NDF)

(1990)

Van Soest et al.

(ADF)

(1991)

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

r

(Kononoff et al., 2003)

(2001) ASAE

$$PeNDF \% = (DM \% > 19 \text{ mm} \times NDF \% > 19 \text{ mm}) + (DM \% > 8 \text{ mm} \times NDF \% > 8 \text{ mm}) + (DM \% > 1.18 \text{ mm} \times NDF \% > 1.18 \text{ mm})$$

($P < /$)

($P < /$)

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

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(1994)

(2003) Kononoff & Heinrichs

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

(2002) Yang et al. (Allen, 2000)

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(%)

(%)

(%) NFC¹

(%) NDF²

(%) ADF³

** (%)

(%)

(%)

(1997) Beauchemin et al. (1988) Shaver et al.

D A E

CPMDairy

**

(Kononoff & Heinrichs, 2003; Mooney & Allen, 1997)

P	SEM	_____		
		/	/	/
		/	/	/
		/	/	/
*	/	/	/	(%)
*	/	/	/	Xgm
ns	/	/	/	Sgm
		: S _{gm}		: X _{gm}
		:ns	/	:*

(%)

1. Non Fibrous Carbohydrate
 2. Neutral Detergent Fiber
 3. Acid Detergent Fiber

... :

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

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

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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< /) (1999) Le Liboux & Peyraud .

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

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					
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/	*	**	/	/	/	/	/	
*	*	**	/	/	/	/	/	NDF
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/	/	**	/	/	/	/	/	NDF
/	/	/	/	/	/	/	/	
/	*	*	/	/	/	/	/	
/	*	**	/	/	/	/	/	NDF
				:FS × APS	:I	:APS	:FS	:*
					/	**	/	

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