Effects of cows and bag type on the undigested neutral detergent fiber after 240 hours in situ incubation

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Three ruminally cannulated Holstein cows and three types of incubation bags were studied to find the effect of cow and bag on undigested neutral detergent fiber (uNDF) of corn silage, wheat straw and alfalfa silage after 240 hours in situ incubation. Two corn silages, a wheat straw and an alfalfa silage sample were dried and ground to pass through a 2.5-mm screen. After thorough mixing, 1gram, 2 grams and 5 grams of each forage were placed into F57 Ankom bags(4cm x5cm), Ankom 5cm x10cm nylon bags (Part#R0510) and Ankom 10cmx20cm nylon bags(Part#R1020), respectively. There were three duplicates for each treatment. Sample mass to surface area by bag was 25mgcm^{-2}, 20mgcm^{-2} and 12.5mgcm^{-2}respectively. The NDF in the residues were analyzed after 240 hours incubation. Data was analyzed by SPSS. Within each forage, the effect of cow and bag type on uNDF within forages was determined by Analysis of Variance. Means were compared by Duncan's multiple range test. The contents of the uNDF differs significantly due to bag type (P <0.001). The content of uNDF in F57 bags is significantly higher than in R0510 and R1020 nylon bags (P < 0.05) and there was no significant difference in uNDF between R0510 and R1020 nylon bags (P >0.05). The uNDF differs within cow for wheat straw (P <0.001). Bag type and effective surface area should be taken into consideration when measuring uNDF by in situ methods, the estimate of uNDF in relatively indigestible materials, such as wheat straw, may also be affected by cow.

Key worlds: uNDF, in situ, bag type, cow

The uNDF of 4 different forages remaining after 240 hours incubation ($uNDF_{240}$).

	Corn silage 1	Corn silage 2	Wheat straw	Alfalfa
uNDF, %NDF				
F57	32.98[a]	40.83[a]	52.44[a]	45.85[a]
R0510	18.42[b]	24.28[b]	39.07[b]	32.62[b]
R1020	19.37[b]	25[b]	39.1[b]	32.79[b]
SD	2.18	2.86	4.89	2.36
P-value	<0.001	<0.001	<0.001	<0.001

Means within the same column with different superscript letters differ significantly from each other (P < 0.05). uNDF, undigested neutral detergent fiber.