Tropentag 2019, Kassel, Germany
September 18-20, 2019
Filling gaps and removing traps for sustainable resources management

EVALUATION OF UNDIGESTED AND POTENTIAL DIGESTIBLE FIBER IN TROPICAL GRASSES AND TROPICAL LEGUMES

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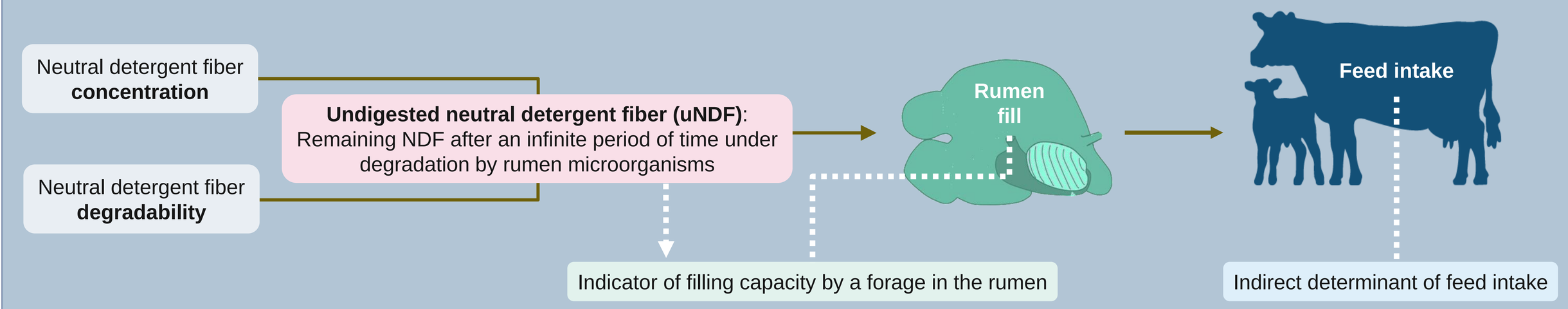
Introduction



- **Decreased intake when tropical legumes are included in large proportions in ruminant diets (> 400 g kg^{-1} dry matter; DM)**
  - **Lower digestibility?**
  - **Higher rumen fill?**
- **Plenty of information is available on the neutral detergent fiber (NDF) concentration of tropical legumes**
- **No information available on the uNDF concentration of tropical legumes**

Objective

To evaluate the uNDF and potentially digestible NDF (pdNDF) concentration of tropical legumes as compared with tropical grasses.

Materials and methods

- Seven tropical grasses and 14 tropical legumes collected from Indonesia, El Salvador, Peru, and Brazil.
- The uNDF was determined by rumen *in vitro* incubation for 240 hours ($uNDF_{240}$).
- The pdNDF was determined by subtracting the $uNDF_{240}$ fraction from total NDF concentration of the sample.

Results

Table 1. The undigested and potential digestible fiber of the samples (mean ± standard deviation)

Variables	Tropical legumes	Tropical grasses
Crude protein (g kg^{-1} DM)	198.3 ± 36.6	79.2 ± 20.4
aNDFom (g kg^{-1} DM)	373.9 ± 88.9	591.6 ± 31.3
$uNDF_{240}$ (g kg^{-1} DM)	239.3 ± 75.4	231.3 ± 71.2
$uNDF_{240}$ (g kg^{-1} aNDFom)	637.6 ± 135.7	389.5 ± 110.6
pdNDF (g kg^{-1} DM)	134.5 ± 53.5	360.4 ± 63.2

aNDFom: amylase-treated ash-corrected neutral detergent fiber with addition of sodium sulfite; DM: dry matter; pdNDF: potential digestible neutral detergent fiber; $uNDF_{240}$: undigested neutral detergent fiber after 240-h *in vitro* incubation

Conclusions

As a proportion of NDF, tropical legumes have a much higher concentration of $uNDF_{240}$ as compared with tropical grasses.

- This helps to explain decreases in voluntary intake in diets containing high proportion of tropical legumes.
- Care must be taken also when using tropical legume forages of high NDF concentration.

Acknowledgement

Risma Rizkia Nurdianti is funded by Lembaga Pengelola Dana Pendidikan (Indonesia Endowment Fund for Education), Indonesia.