

WILDLIFE HABITAT and NUTRITION LAB

DIET AND NUTRITION ANALYSIS

*** LIST OF LABORATORY SERVICES AND PRICES**

*****All prices subject to change without prior notice*****

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LABORATORY ANALYSES FOR WILDLIFE/DOMESTIC ANIMALS

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- I. CHEMICAL NUTRITIONAL ANALYSES:** (plant, fecal or urine material)
Results reported on an oven-dry basis unless requested otherwise.

We strongly recommend research projects anticipating publication of results consider analysis of replicate samples.

- A. FORAGE PLANT PACKAGE:** (Select any or all listed) **Prices are in U.S. dollars.**

Type of analysis*	Sample
Freeze Drying	\$3.50
Grinding and Handling	\$3.75
% Oven dry matter (ODM)(moisture-free basis)	\$3.50
% Crude Protein (Nitrogen = C.P./6.25)	\$10.00
Nitrogen & Carbon (Truspec C-N Analyzer)	\$15.00
% Crude Fat (Ether extract)	\$11.00
% Total Ash for % Organic Matter (Muffle Furnace)	\$3.25
Gross Energy (Bomb calorimeter) cal/gm	\$13.00
%IVDMD (in vitro dry matter digestibility)	\$11.00
Prosky Total Dietary Fiber TDF (monogastrics):+	\$28.00
Van Soest/Ankom sequential fibers (ruminants):	
% Neutral Detergent fiber (NDF)	\$7.00
% Acid Detergent fiber (ADF)	\$7.00
% Acid Detergent Lignin (ADL) (72% Sulfuric Acid method) and % Acid insoluble ash (AIA)	\$4.25
Tannin Analysis:	
Martin & Martin (1982) ppt. method	\$35.00
CBB-BSA (2000) method	\$25.00
Total Phenolics (Folin Ciocalteu Reagent)	\$11.00
Macro minerals Ca, P, Na, Mg, K	By quote

* We require a minimum of 1 dry gram of sample for each type of analysis. All samples require an oven dry matter done only once to cover all other types of analyses performed.

+ Prosky analysis price includes residue ash analysis in order to determine the TDF value.

- B. FECAL INDEX PACKAGE:** Fecal indices for monitoring the nutritional well-being of big game herds and free ranging livestock, or for analysis of controlled feeding trials. (Select any or all listed) **Prices are in U.S. dollars.**

Type of analysis	Sample
Grinding and handling fee	\$3.75
% Oven dry matter (moisture-free basis)	\$3.50
% Fecal nitrogen	\$10.00
% Fecal NDF	\$7.00
Fecal DAPA mg/gm	\$24.00
Macro minerals Ca, P, Na, Mg, K	By quote

* We require a minimum of 1 dry gram of sample for each type of analysis. All samples require an oven dry matter done only once to cover all other types of analyses performed.

- C. URINE SAMPLE PACKAGE:** From controlled feeding trials **Prices are in U.S. dollars.**

% Urinary nitrogen	\$10.00
Urinary Gross Energy cal/gm or cal/ml	\$13.00

- II. FOOD HABITS - DIET COMPOSITION ANALYSIS:** Fecal or Rumen analysis is conducted at one of three levels of identification intensity. Prices reflect various numbers of fields of view under the microscope (see table).

- A. Plant genus/species level of identification (identify all plants possible in diet).
- B. Forage Class and Major forage plants level >5% in diet (usually 6-12 major plants plus forage classes identified).
- C. Forage Class only (Grass, Sedge/Rush, Forbs, Shrubs, Conifers, Lichen, Moss, etc.).

Samples may be collected weekly, monthly, or by season and composited into a diet sample as desired by the investigator. Results reported as percent diet composition using epidermal fragment cover as the sampling criterion. Mail samples either frozen, dried, or salted. **Please do not grind samples. Prices are in U.S. dollars.**

# of Views	views x slides	Level A	Level B	Level C
25	(25 x 1)	\$90	\$67.50	\$54
50	(25 x 2)	\$120	\$90	\$72
100	(25 x 4)	\$180	\$135	\$108
150	(25 x 6)	\$240	\$180	\$144
200	(25 x 8)	\$300	\$225	\$180

NOTE: 100, 150, and 200 Microscope views are most commonly requested for composite samples. On the other hand 25, 50, and 100 views are most often used for looking at individual animals, sex or age classes, similar areas, or for preliminary data, etc. and later combining the data if desired. Fewer views increases error in the less important forage plants in the diets and can eventually effect the plants of intermediate importance.

Prices reflect a fixed cost of chemicals and supplies for preparing microscope slides and for studying plant reference slides, and a variable cost for analyzing diets at the different levels of identification for the selected number of views.

It is recommended that a reference microscope slide collection be established for your area in order to obtain the best results from food habits analysis.

Plant reference slides cost . . . \$7.50/plant if you wish to receive a set. No charge for slides we use for analysis and add to our reference collection.

NOTE: We will need a list of habitat types/plant community types and a list of major plants, occurring in your study area to guide us in studying reference plant microscope slides from our file.

CORRECTION FACTORS FOR FOOD HABITS: (optional)

Due to the problem of differential digestibility of various plants using fecal analysis one can apply relative correction factors to adjust the original diet composition to better reflect amounts eaten (and relative proportions) by the animal.

Correction factors are obtained by weighing plant material in proportion to their composition found by fecal analysis. This "composite diet" is then subjected to in vitro digestion using rumen fluid of various big game animals or domestic sheep and cattle. The residue of this laboratory digestion process is then considered to be a simulated fecal sample of the diet. This residue is made into microscope slides and read as if it were a diet. Correction factors after digestion are then applied to the original fecal analysis results to adjust the diet.

Cost for correction factors are \$60.00 /diet for the digestion process, plus the cost of re-reading the diet at the various levels of intensity listed on the previous page (see below).

For economy sake one could obtain correction factors for forage class only to adjust the original fecal analysis results for \$108 - \$180 (100 or 200 views level C) plus the digestion cost \$60.

Thus, one example of a complete analysis might look like: **Prices are in U.S. dollars.**

Fecal analysis at plant species/genus level A 200 views	\$300/diet
Digestion process	\$60/diet
Correction factors forage class level C 100 views	\$108/diet
TOTAL	\$468/diet

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