

REPORT ON THE RATION OF “LOUIE” FOR JASON GROSSMAN

BY

**Mike Davies BVetMed CertVR CertSAO FRCVS
RCVS Specialist in Small Animal Clinical Nutrition**

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INTRODUCTION

To ensure a ration is Complete and balanced it should comply with Nutritional Guidelines provided by AAFCO in America or FEDIAF in Europe.

Access to “Louie’s” ration was provided to the Author by electronic link <https://xeny.net/diet.html> on 13th May 2025. (See Appendix 1 below). I usually examine a written recipe and subject it to analysis using Alacalc software. Unfortunately, the detailed amounts of specific ingredients fed to “Louie” are not available, and so it is impossible to perform an accurate analysis of daily intake to compare against AAFCO or FEDIAF Guidelines.

Homemade rations can be analysed using various computer software programmes, but these are all flawed to some extent because of assumptions about the analysis of ingredients and variability between raw products selected for inclusion. The only way to be sure a food is complete and balanced is to have it analysed AFTER manufacture and to conduct controlled feeding trials.

SAFETY

I have examined the ingredients of “Louie’s” daily ration and all of the ingredients are SAFE except for the following:

Peanut Butter – is generally regarded as safe for dogs HOWEVER some brands contain the sweetener XYLITOL which is highly toxic to dogs even in very low amounts. These brands must be avoided.

Walnuts – can be toxic to dogs, especially the outer shell. Mold and Fungi including Aflatoxin contamination is a major consideration. This can also be a problem with Almonds. In one study (Coleman and others 2016) 28 cases involved exposure to walnut wood, and 65 involved exposure to nuts or hulls. Spontaneous vomiting was commonly observed (13/28 [46%] and 31/65 [48%] dogs that ingested wood and nut components, respectively). Neurologic or

musculoskeletal signs were significantly more common in dogs that ingested wood (26/28 [93%]) than in those that ingested nuts or hulls (15/65 [23%]). Relative risk of developing neurologic signs after ingestion of wood was approximately 4 times that after ingestion of nuts or hulls.

FOOD ANALYSIS

A dry kibble vegan food (manufactured in Italy). Water content not declared – assume 10%. Some nutrients which can be of concern if levels are too high are:

VITAMIN D3 The maximum limit for Vitamin D3 intake according to FEDIAF IS 227 IU /100g Dry Matter (Legal maximum) and 320 IU per 100g Dry Matter (Nutritional maximum). In your recipe it states “Vitamin D3 1,500 IU” . This is added as a supplement per Kg food = 150 IU per 100g = 166.66 IU per 100g DM. Which is fine.

COPPER – The Legal maximum level of Copper according to FEDIAF is 2.8mg per 100g Dry Matter. In your analysis it is stated to be “Copper 9.6 mg (Copper [II] sulphate pentahydrate 25.15 mg, Copper [II] chelate of protein hydrolysates 32 mg)” This is added as a supplement per Kg food = 0.96mg per 100g = 1.07 mg/100g DM. Which is fine.

ZINC – The Legal maximum level for Zinc according to FEDIAF is 22.70 mg/100g Dry Matter. In your analysis Zinc is declared as 100 mg (Zinc sulphate, monohydrate 205.5 mg, Zinc chelate of protein hydrolysates 572.5 mg). This is added as a supplement per Kg food = 10mg/100g = 11.11 mg/100g DM Which is fine.

Other ingredients of concern are:

FABA BEANS- are **toxic** to dogs if they are fed raw. OK if well cooked.

YUCCA – is **TOXIC** to dogs and cats. Yucca contains steroidal saponins. When ingested by animals, clinical signs of drooling, vomiting, weakness, incoordination and dilated pupils (cats) may be seen. Typically, when dogs and cats ingest yucca, it results in mild vomiting and diarrhea. (Pet Poison Helpline) Advise remove this from ration.

LUPIN MEAL – A flour made from the sweet lupin bean. Lupins contain alkaloids which can be **TOXIC** to dogs. Signs of lupin poisoning in dogs may include:, Excessive drooling and vomiting, Abdominal pain, Diarrhea, Lethargy, Muscle tremors or seizures, Change in urine color, Jaundice, Difficulty breathing. Lupins should not be fed to dogs.

ASPERGILLUS Fermentables – although widely used in the food industry I do not personally recommend products containing Aspergillus fermentables because of the potential for contamination with Aspergillus organisms themselves which can cause disease (Aspergillosis) in dogs .

MD COMMENTS ON VEGANISM IN DOGS

Historically domesticated dogs have been classified as carnivores, but we now know that they have evolved to be omnivores. Many other carnivores have also evolved away from meat-eating behaviour ;

BEARS/PANDAS Have genetically evolved in response to local food availability :

Mainly

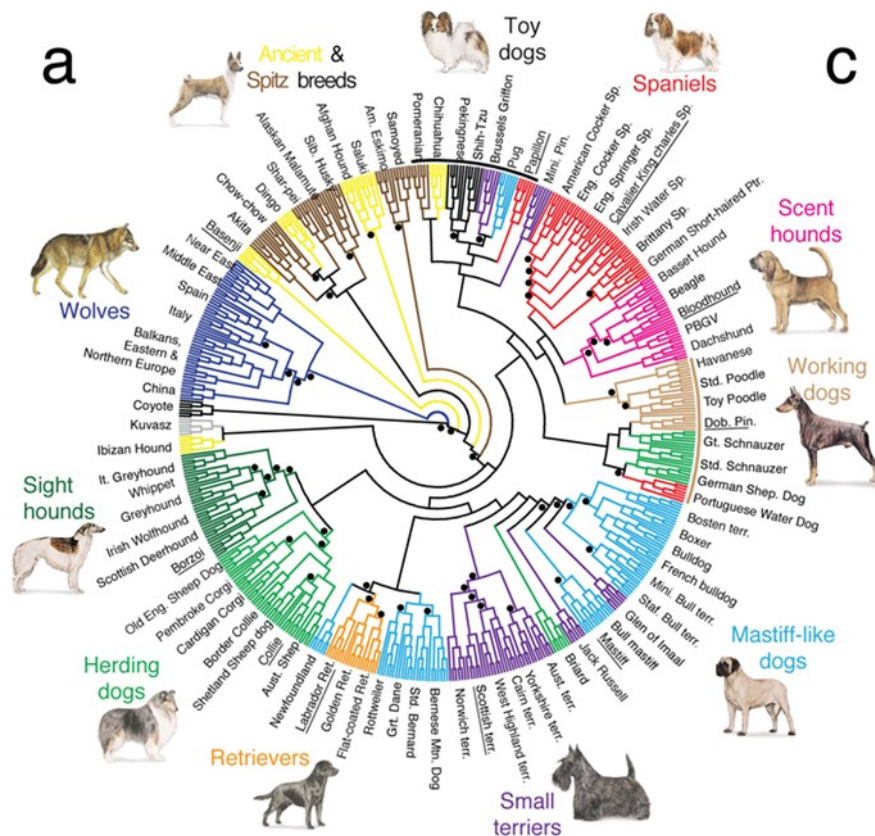
Carnivores : Polar Bears

Omnivores: Black and Brown Bears

Vegetarians: Giant Panda (bamboo)

Whilst wild dogs and ALL cats remain predominantly carnivorous, a similar evolutionary change has happened with domesticated dog breeds

Genetic similarity tree for dogs and wolves based on SNP genotyping data.



Clades are labelled based on phenotypic/functional designations used by dog breeders. Dots indicate C95% bootstrap support from 1,000 replicates. a Haplotype-sharing cladogram for 10-SNP windows ($n = 6$ for each branch). (vonHoldt 2010; Wayne et al 2012)

Genomic studies have shown that dogs and wolves are genetically highly divergent –including 10 gene changes that facilitate digestion and utilisation of starches (Gray et al 2009)

In any case in Wolves in Greece ($n=32$) analysis of stomach contents showed plant material (grasses and fruits) contributed substantially to their diet (Papageorgiou et al 1994)

Genetic evolutionary changes include;

- Dogs have Type D taste buds , which are not found in cats, and these respond to a small number of “fruity-sweet” compounds
- Starch is the main carbohydrate stored in plants following photosynthesis. It has glycosidic bonds requiring enzymatic digestion by α -amylase. Amylase is found mainly in saliva and pancreatic secretions that is responsible for breaking down starches into simple sugars so they can be absorbed across the intestine.

According to the NRC (2006) dog and cat saliva lacks the enzyme α -amylase

Dogs : Actually domesticated dog saliva does contain amylase (Contreras-Aguilar et al 2017)

- c. The enzyme glucokinase is responsible for the phosphorylation of glucose to glucose-6-phosphate, the first step of glycolysis. Dogs have high glucokinase activities, similar to omnivores rather than carnivores (Balard 1965)

Plant-based foods are a diverse group including :

Fruits

Vegetables

Legumes

Grains

Nuts

Seeds

Each contains a variable amount of protein, fat, carbohydrate and also of essential nutrients. Some contain high amounts of fibre or phytate which can interfere with nutrient bioavailability. Some contain potentially toxic ingredients for different species.

There is no problem meeting nutrient or energy requirements for dogs as many plant foods are high in energy content notably

Oils

Nuts

Fruits

Cereals

Suggestions that plant-derived proteins are less digestible than animal-derived proteins are false. A retrospective study (Golder et al 2020) : 226 dogs and 296 cats involving 459 canine studies and 427 feline studies using different diets.

All were complete foods

Animal derived protein sources included: meat, organs, meat meals, meat by-products and blends of poultry, fish, beef, pork, lamb, and venison. All egg and dairy proteins

Plant-based protein sources included: flours, starches, fibres, protein isolates, blends, and whole fruits. Whole grains and vegetables from rice, corn, soy, wheat, pea, potato, flax, algae, apple, sunflower, pecan, tomato, pumpkin, spinach, ginger, rye, citrus, cranberry, sweet potato, green bean, chickpea, bell pepper, quinoa, carrot, zucchini, and sorghum

RESULTS

Dogs and cats were both able to digest dietary plant protein

Protein digestibility in dogs was unchanged as plant protein increased

In cats, eating dry food, an increase in plant protein, was associated with increased protein digestibility (5.5% at 50% protein)

Mean Digestibility

	Dry (n=320)	Wet (n=139)
Dogs	89.8%	86.7%
	(n=256)	(n=171)
Cats	95.4%	94.8

In both dry and wet dog food, there was no significant relationship between percent of the food as fibre or the percent of protein from plants with protein digestibility

SUMMARY OF ALL STUDIES and practical experience of Vegetarian and Vegan dog foods = For dogs, plants and other non-animal derived foods can supply **all** the essential nutrients and energy required to meet FEDIAF Guidelines but careful formulation is required.

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APPENDIX 1

LOUIE'S DIET

May 2025

Louie is a 5½-year-old desexed male border collie (breed not confirmed)

Weight approximately 24 kg

Exercise: walks/plays/runs/wades/potters for at least two hours a day

- 150g kibble - usually Amì but sometimes Veganpet
 - one or two 15g (“small”) Whimzees dental chews
 - ¾ cup unsweetened oat milk + ½ teaspoon EAC probiotic powder
 - occasional (average 20g/day) roast vegetables with minimal oil including sweet potato, pumpkin, broccoli
 - ½ teaspoon peanut butter (100% peanuts), increased to 1 teaspoon when he needs to take pills
 - 10g blueberries or blackberries
 - 5g walnut kernel or almond kernel
 - 2g toast with margarine
 - training rewards: sometimes just kibble (included in the amount above) and sometimes varying amounts of extra peanut butter, peanut-marinated tofu, hummus on tiny bits of water cracker, tahini, Sanitarium Veggie Roast, Sanitarium sausages, Biocheese
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Nutritional breakdowns:

- Amì kibble:
 - Corn gluten
 - Corn
 - Rice
 - Peas
 - Sunflower seed meal
 - Refined sunflower oil
 - Hydrolyzed vegetable proteins
 - Minerals
 - Additives – Nutritional Additives per kg:
 - Vitamin A 21,000 IU
 - Vitamin D3 1,500 IU
 - Iodine 2 mg (Coated granulated calcium iodate, anhydrous 3.08 mg)

Copper 9.6 mg (Copper [II] sulphate pentahydrate 25.15 mg, Copper [II] chelate of protein hydrolysates 32 mg)

Manganese 25.4 mg (Manganous sulphate, monohydrate 78.2 mg)

Zinc 100 mg (Zinc sulphate, monohydrate 205.5 mg, Zinc chelate of protein hydrolysates 572.5 mg)

Selenium 0.05 mg (Selenised yeast *Saccharomyces cerevisiae* CNCM I-3060, inactivated 22.75 mg)

Technological Additives per kg:

Taurine - amount unclear from web site!

Tocopherol- rich extracts from vegetable oils 3,000 mg

Metabolizable energy 3,725 kcal/kg

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Crude Protein 25.00%

Crude Fat 12.00%

Crude Fibres 3.50%

Crude Ash 4.00%

<https://www.vpets.com.au/product/ami-dogs-vegan-dog-food>

- Veganpet kibble:

soy

Pea Protein

Faba Beans

Chickpea

ground rice

flax yeast

cold pressed organic coconut

sunflower and flax oil. Linoleic Acid

(c18:2n-6) AA(C20:4n-6) DHA(C22:6n-3)EPA(C20:5n-3) vitamins.

Minerals

Amino Acids

FOS

Yucca Schidigera

Dicalcium Phosphate

Prebiotics

L-Lysine

DL-Methionine

Arginine

Histidine

Isoleucine

Leucine

Phenylalanine

L-Tryptophan

Threonine
Valine
Taurine
Glutamine
L-Carnitine
Choline
Vitamins A, D, E, C, B1(Thiamin) B2(Riboflavin) Niacin, biotin,
Pantothenic Acid, B6(Pyridoxine) Vitamin B12(Cobalamin)Folic Acid
Calcium Propionate
Potassium chloride
Phosphorus
Iron
Zinc
Copper
Manganese
Iodine
Selenium
Cobalt
Ronozyme A - Protein – 26% (min)

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Fiber – 4% (max)
Fat – 14 % (min)
Linoleic acid – 3% (min)
Ca:P 1:1
Omega Fatty Acids 1.0% (min)
Docosahexaenoic Acid no less than 0.14%
Ascorbic Acid 85mg / kg (min)
Vit E 600mg/kg (min)
Taurine 0.1% (min)
Metabolizable Energy 360kcal/100g as fed

<https://veganpet.com.au/shop/vegan-dog-food-treats/10-kg-complete-and-balanced-dry-pup-dog-food>

- Whimzees dental chew: 15g
Potato starch
glycerin
powdered cellulose
lecithin
yeast
malt extract
sweet lupin meal
alfalfa extract

paprika

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Crude Protein (min) 1.1%

Crude Fat (min) 2.0%

Crude Fat (max) 4.3%

Crude Fibre (max) 13.7%

Moisture (max) 12%

Crude Ash (max) 2.4%

<https://www.budgetpetproducts.com.au/product/whimzees-dental-toothbrush-star-small-treats-for-dogs-7-12kg-150-pack/20761>

- oat milk:

water

whole oats (min.10%)

sunflower oil

oat flour

gum arabic

minerals (calcium carbonate

calcium phosphate)

acidity regulator (potassium phosphate)

natural flavour

sea salt

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2% fat

6.3% carbohydrates including 1.1% sugars

0.6% protein

0.9% fibre

50mg/100g sodium

120mg/100g calcium

<https://soy.com.au/product/oat-milk-unsweetened>

- EAC probiotic:

Yeast culture

Aspergillus niger fermentation solubles

Bacillus subtilis fermentation product

Aspergillus oryzae fermentation solubles

Yucca schidigera extract

Lactobacillus acidophilus fermentation product

Enterococcus faecium fermentation product

(inactive ingredients not listed)

https://eacanimalcare.com/products/dog-probiotics-gut-health-inside-out?selling_plan=3152183366&variant=13581671497798