Technical Bulletin

Versity™
An Alternative Protein for Dogs

Key Points

Alternative protein

Versity is a dried yeast, *Saccharomyces cerevisae*, specifically produced for the pet industry as an alternative, high-quality protein that is neither animal- nor plant-based. It is a high-quality protein due to its balanced essential amino acid profile and low levels of fat and calcium.

Palatability benefit

Diet preference based on first-choice selection favored Versity as it was chosen first on 26 occasions compared with 14 occasions for Control ($P<0.10$). More dogs ($P<0.05$) chose Versity first on both days than Control (11 vs. 5, respectively).

Digestibility response

A nutritionally complete and balanced diet with 10% Versity was equally well-utilized compared with Control based on 90% protein and 94% fat digestibility. Digestible and metabolizable energy values were also similar averaging 90% and 3.88 kcal/g, respectively.

Applications

Versity is a highly versatile ingredient when formulating foods and treats for dogs of all ages, sizes and life styles. A balanced essential amino acids profile, coupled with low levels of fat and calcium, make Versity an ideal protein source specifically for large-breed puppies and adult, senior and overweight dogs.

Dietary proteins are not created equally

and differ based on amino acid composition and availability. Protein quality is a measure of the ability of a protein to meet tissue amino acid requirements. A high-quality protein supplies the proper levels and proportions of essential amino acids. Versity is a dried yeast (*Saccharomyces cerevisae*) with an essential amino acid profile comparable to high-quality, animal-based protein

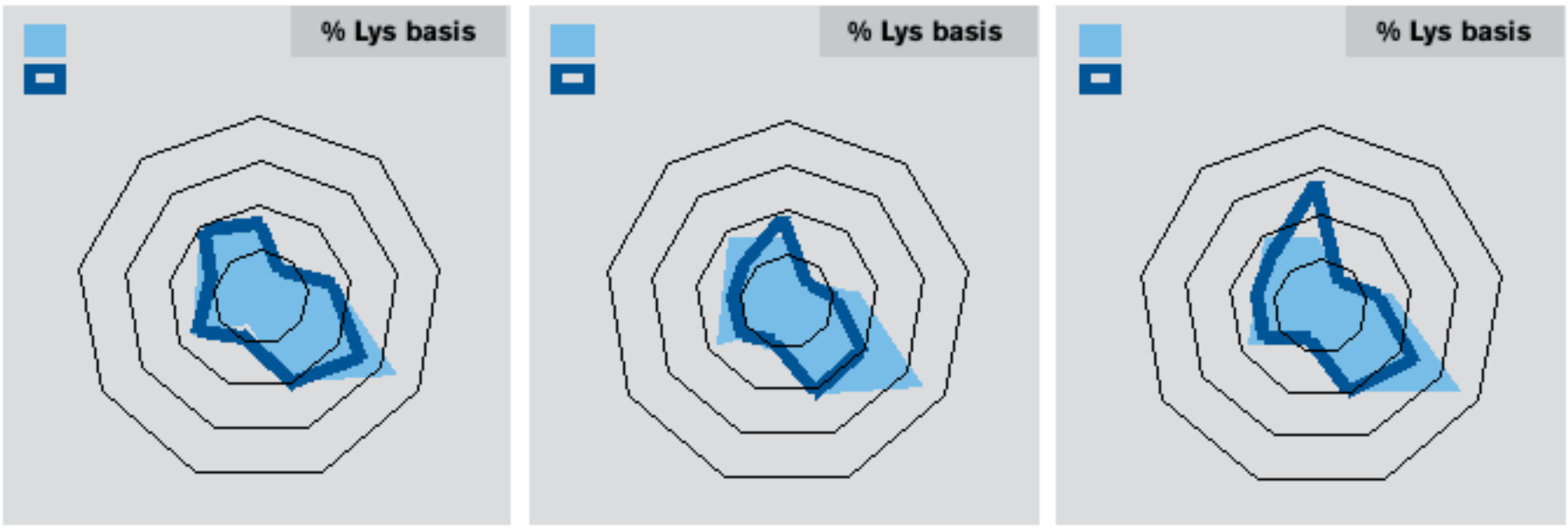
Demonstrated nutrition with no observed adverse effects on palatability or digestibility

sources like egg, fishmeal, poultry by-product meal, etc. (**Figure 1**). Versity is produced specifically for the pet food industry as an alternative protein (48% protein minimum) source that is neither animal- nor plant-based. The yeast source has not been genetically modified. Palatability and digestibility studies demonstrate this high-quality protein source has no negative effects on food consumption or nutrient utilization.

Research

Palatability and digestibility studies assessed the feeding value of Versity in a nutritionally complete and balanced

Figure 1: Amino acid composition of Versity vs. egg, fishmeal and poultry by-product meal (PBPM) when expressed as a percentage of lysine



diet matrix fed to healthy, adult Beagle dogs. Studies were conducted at a USDA-licensed facility according to guidelines established by the Animal Welfare Act and approved by the Institutional Animal Care and Use Committee. Ingredient and nutrient composition of diets used in these studies are shown in **Table 1** and **Table 2**, respectively.

A standard two-bowl test was used to assess diet palatability by measuring first-choice diet selection and total food consumption. Diet preference based on first-choice selection over two days tended ($P < 0.10$) to favor Versity as it was chosen first on 26 occasions compared with 14 occasions for Control (**Figure 2**). This is attributed to a trend ($P < 0.10$) for Versity to be selected first on day one. Versity was chosen first on both days by significantly ($P < 0.05$) more dogs (n = 11) than Control (n = 3). Total diet consumption over the two-day period was 6,953 ± 203 g and 6,085 ± 177 g for Versity and Control diets, respectively (**Table 3**). The consumption ratio (1.14:1) for Versity vs. Control was not significantly different. There was a trend ($P < 0.10$) for dogs

Table 1. Ingredient composition of test diets

Ingredient, %	Control	Versity
Chicken meal	13.1	13.1
Brewers rice	13.0	13.0
Corn	13.0	13.0
Wheat grain	13.0	13.0
Corn gluten meal	10.0	10.0
Versity		10.0
Pork meal	9.9	2.2
Wheat midds	8.7	2.6
Poultry fat	9.4	10.1
Miscellaneous[1]	6.2	6.2
Macrominerals[2]	2.9	6.0
Vitamins & trace minerals[3]	0.8	0.8

[1]Beet pulp, palatant, flaxseed, calcium propionate, ethoxyquin

[2]Potassium chloride, salt, calcium carbonate, monocalcium phosphate

[3]Choline chloride, iron sulfate, zinc sulfate, vitamin E, zinc oxide, manganese sulfate, copper sulfate, selenium, niacin, biotin, calcium pantothenate, riboflavin, vitamin A, menadione sodium bisulfite complex, thiamine mononitrate, vitamin B12, calcium iodate, pyridoxine HCl, vitamin D3, cobalt carbonate, folic acid

Table 2. Nutrient composition of test diets

Nutrient [a]	Control	Versity
Moisture, %	5.00	5.3
Crude protein, %	30.44	30.43
Crude fat, %	15.94	15.33
Crude fiber, %	2.32	1.80
Ash, %	8.88	9.97
Calcium, %	2.07	2.14
Phosphorus, %	1.48	1.53
Nitrogen-free extract, %	42.42	42.47
Gross energy, kcal/g	4.72	4.98
Metabolizable energy, kcal/g[b]	3.91	3.86

[a] Composition expressed on DM basis

[b] Atwater calculation: ME = 10 x {(3.5 x % Protein) + (8.5 x % Fat) + (3.5 x % NFE)}

Table 3. Diet preference based on total food consumption

Food Consumption	Control	Versity	P<
Total, g	6,085 ± 177	6,953 ± 203	0.50
Day 1, g/dog	137.8 ± 6.9	212.8 ± 10.6	0.10
Day 2, g/dog	166.5 ± 8.3	134.9 ± 6.7	0.54

Figure 2: Diet preference based on first-choice diet selection.
[a,b] P < 0.05 [x,y] P < 0.10

FIGURE 2:

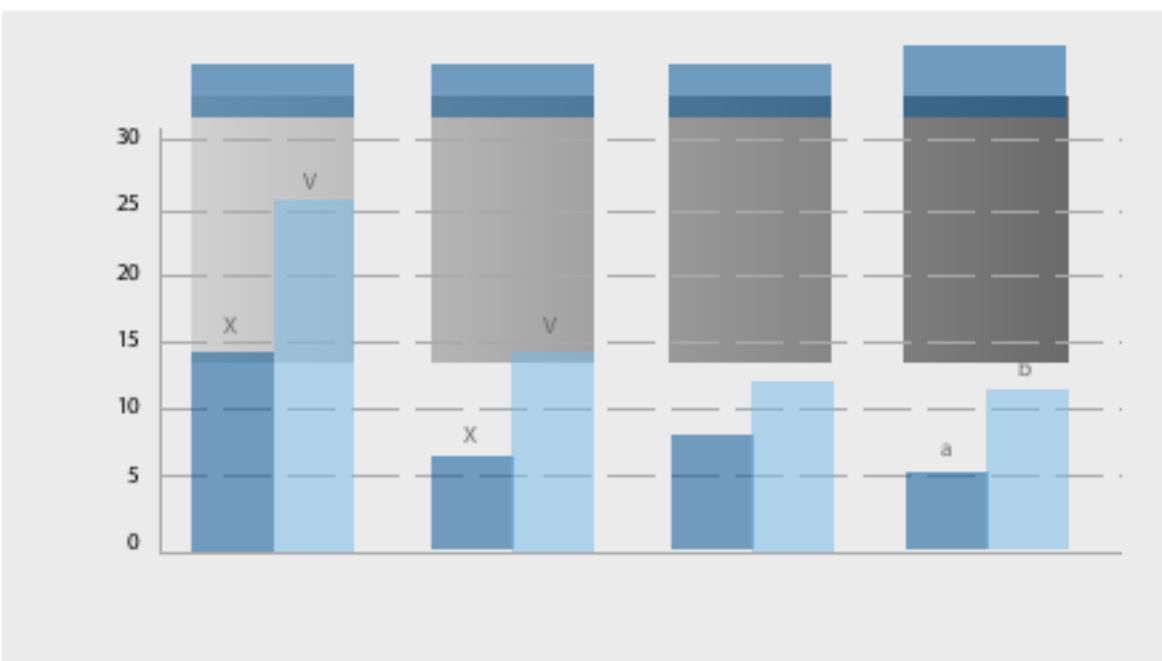


FIGURE 3:

Figure 1.

to consume more Versity on day one, but not on day two, based on average daily consumption. Individual intake ratios calculated for each dog (**Figure 3**) averaged 0.53 and 0.47 for Versity and Control, respectively. Versity was clearly preferred by seven dogs based on intake ratios (≥ 0.67) and five dogs clearly preferred Control.

Nutrient digestibility was measured using 12 dogs and an AAFCO-defined quantitative collection method (**Figure 3**). Dogs were fed their respective test diet once daily during five-day acclimation and collection periods. Stool quality was subjectively evaluated using a fecal rating system:

0 = none
1 = watery diarrhea
1.5 = diarrhea
2 = moist, no form
2.5 = moist, some form
3 = moist, formed
3.5 = well-formed, sticky
4 = well-formed
4.5 = hard, dry
5 = hard, dry, crumbly

Daily food consumption was similar averaging 266 and 247 g/d for Versity and Control, respectively. Stool quality was also similar averaging 3.4 ± 0.05 and 3.3 ± 0.05 for Versity and Control, respectively. Percentage of dogs producing highly acceptable stools, rated as 3.0 to 4.0, was similar for Versity and Control (96% and 93%, respectively). Both diets were equally well-utilized with apparent digestibility values averaging 90 ± 1.4%, 94 ± 0.7%, 85 ± 2.0% and 90 ± 1.5% for protein, fat, dry matter and organic matter, respectively. Digestible and metabolizable energy values were also similar for Versity and Control averaging 90 ± 1.4% and 3.88 ± 0.06 kcal/g, respectively.

FIGURE 3:

FIGURE 3:

Figure 3: Individual intake ratios based on total consumption of Versity vs. Control

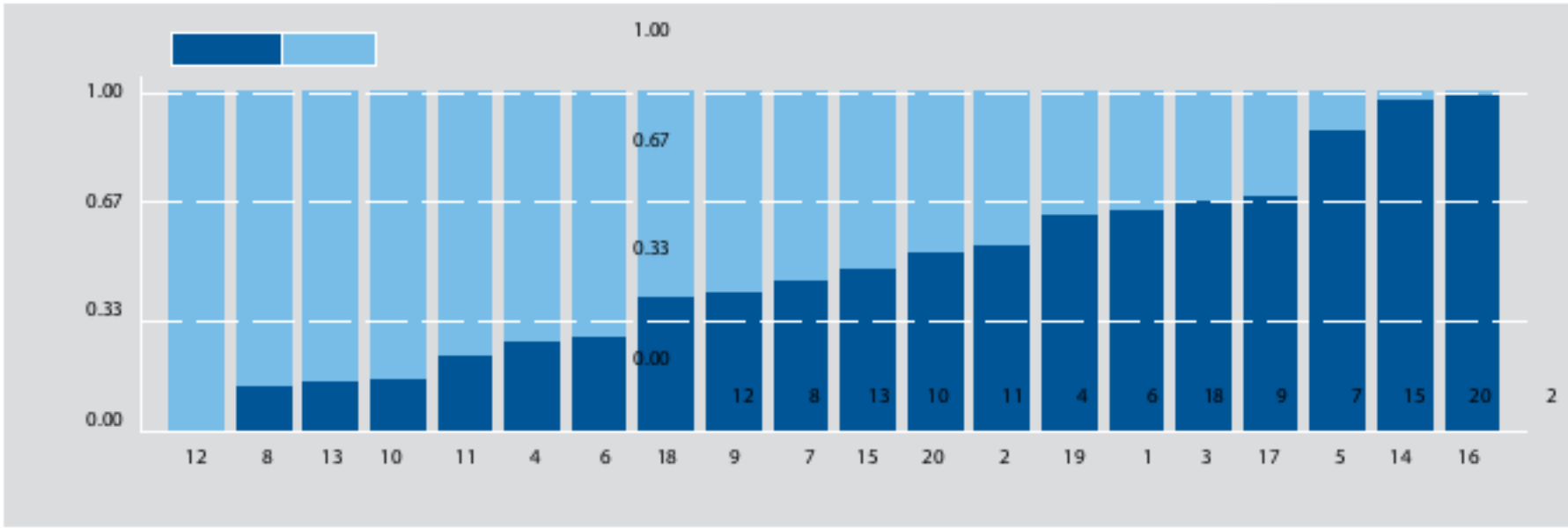
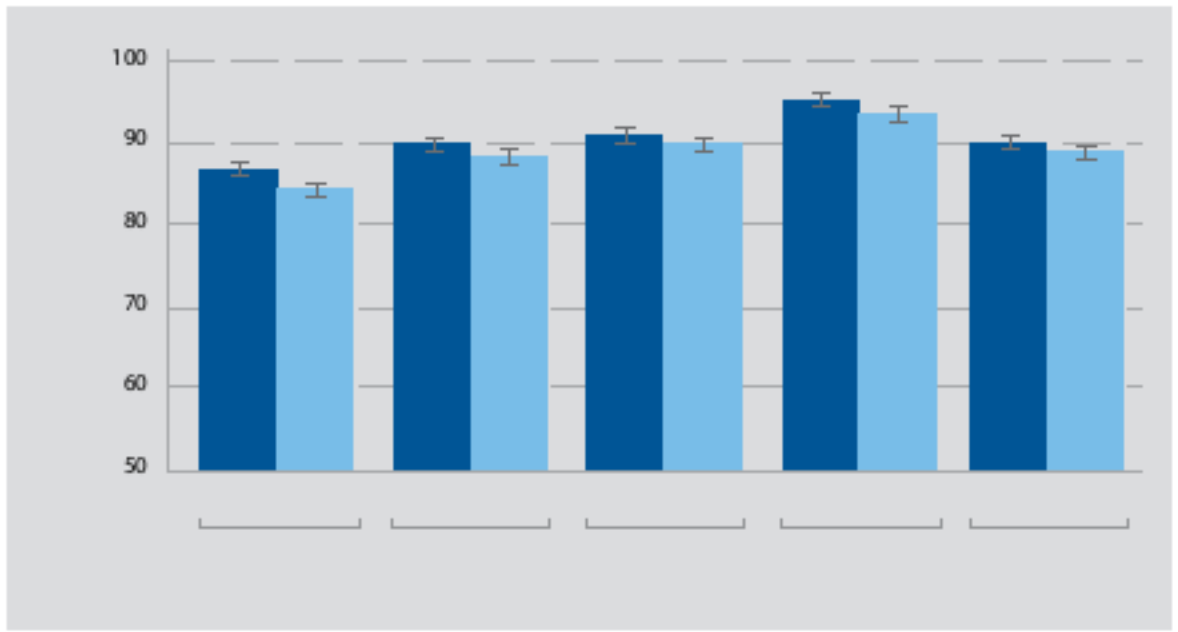


FIGURE 4:

FIGURE 4:

Figure 4: Apparent total tract nutrient digestibility (%)



Summary

Studies show Versity is well-utilized by dogs when incorporated into a nutritionally complete and balanced formula. Versity does not compromise diet acceptability or diet utilization based on total food consumption or nutrient digestibility. Preference testing showed more dogs (11 vs. 5) preferred Versity based on first-choice selection. Versity is highly digestible and helps to support digestive health based on the production of highly acceptable stools.

Applications

Versity is a highly versatile ingredient that provides nutritional flexibility when used to formulate dog foods and treats. This flexibility is attributed to its balanced profile of essential amino acids and its inherently low levels of fat (3%-6%) and calcium. Versity represents an economical alternative to costly, high-quality, animal-based proteins like egg, fishmeal, etc. It also has a nutritional advantage over animal-based protein because it contributes less fat and calcium to the total formula. Versity also complements the inferior amino acid profile of plant-based protein to improve overall diet quality.

As a high-quality protein with a low calcium content, Versity is an appropriate ingredient in formulas designed for large- and giant-breed puppies. These puppies have reduced calcium requirements, but they need high-quality protein to support proper growth and musculoskeletal development. It is also well-established that maintaining lean body mass and minimizing body fat accumulation are key factors for healthy living and successful aging. The balanced profile of essential amino acids and its low fat content make Versity an ideal protein source for formulations specifically targeting adult, senior and overweight dogs. Versity is demonstrated nutrition which can be used to support the health and wellness of all dogs regardless of their age or life style. ■

SM0229-1017