Assessment of Macro and Micro-Nutrients in a Recycled Supplement for Canines

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I used recycled food from the my school's cafeteria to design a food supplement for dogs housed in a kennel and adoption facility. My veterinarian agreed that my plan would have no negative long-term affects. Last year, I used USDA standards to add chicken, carrots, lettuce, bananas and brown rice that provided protein, fiber and carbohydrates. I assessed my levels compared to my predictions and adjusted the values of protein and lipids in my calculations. This year, I assessed the micro-nutrients zinc, iron, calcium, phosphorous, potassium and sodium. From my assessment of my original mix, I had deficiencies in five minerals. I adjusted the supplement recipe in two different ways and compared to a control dog food; I increased nutrients using liver and eggs shell or lean beef and egg shell. I discovered that the dogs had a low taste-tolerance for liver, and both recipes were still deficient in four minerals. I investigated a higher than expected reading of phosphorous in those adjustments. I concluded that the phosphorous came from chili powder and the pinto beans my beef was cooked with, so I changed my prediction calculations from just USDA standards to match my data. I added yogurt and black eyed peas. I found I needed to now create an algorithm using a spread sheet to keep up with the ingredients and the nutrients each one changed. I was able to change my recipe combination with the algorithm much more easily. My assessment of adjustment three showed that I was successful at raising all six mineral levels to within 5% or above my target levels and were comparable to my control dog food. This projects shows that recycled, fresh food can be used to make a nutritious supplement for dogs that they desire and does no harm.

Awards Won:

Third Award of $1,000