

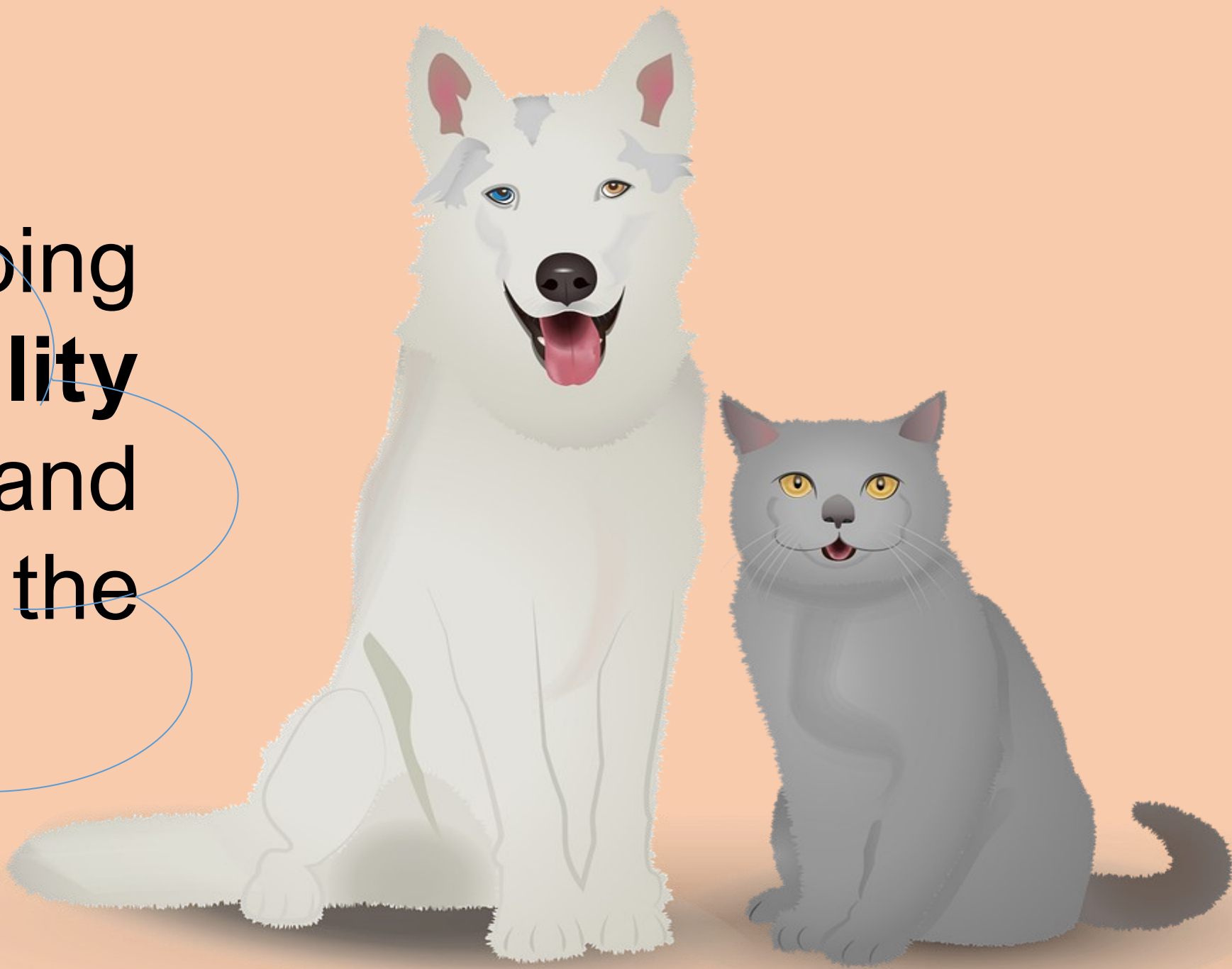


Alternative Proteins in Pet Food: A Sustainable, Nutritious Future or Just a Trend?

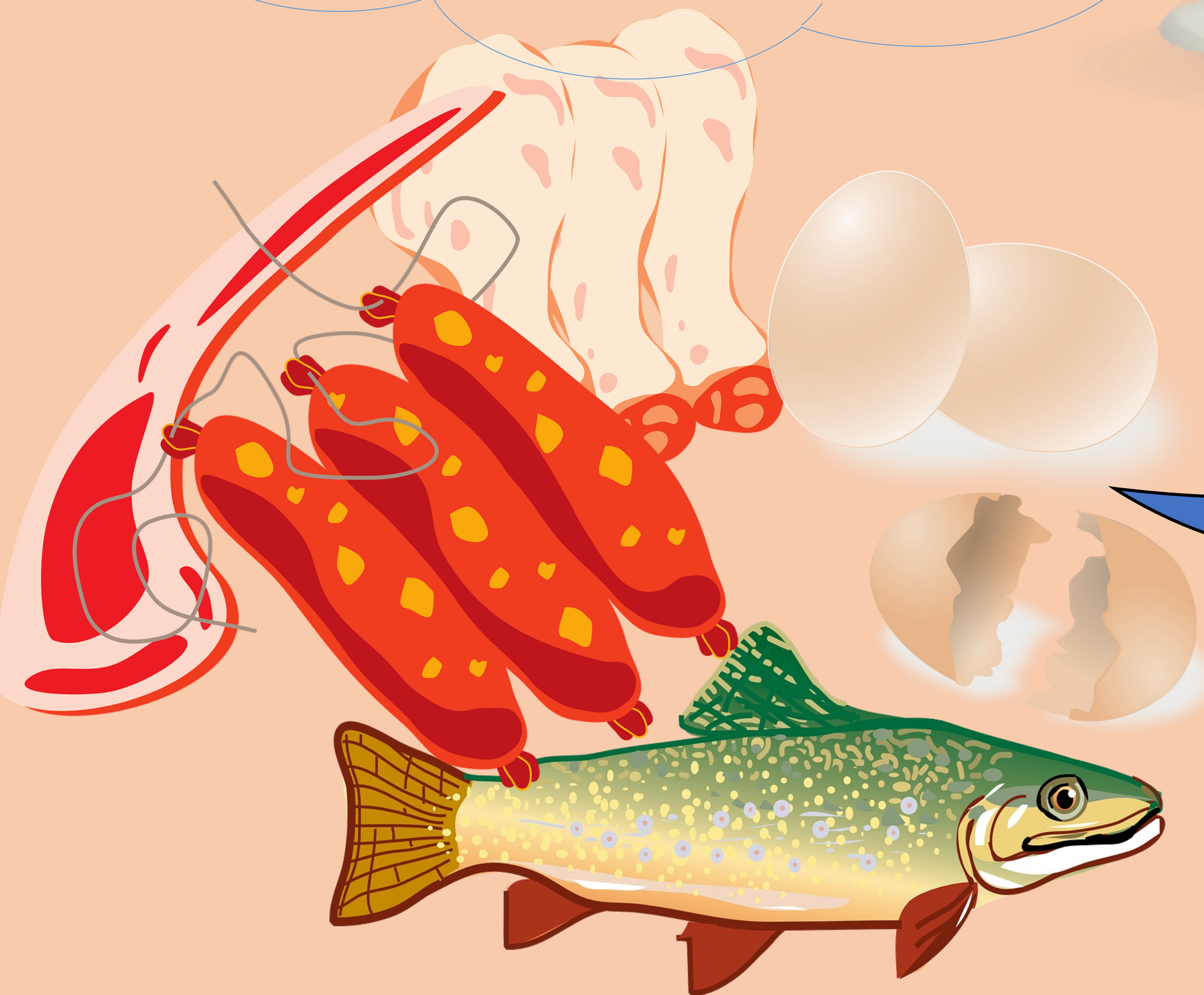
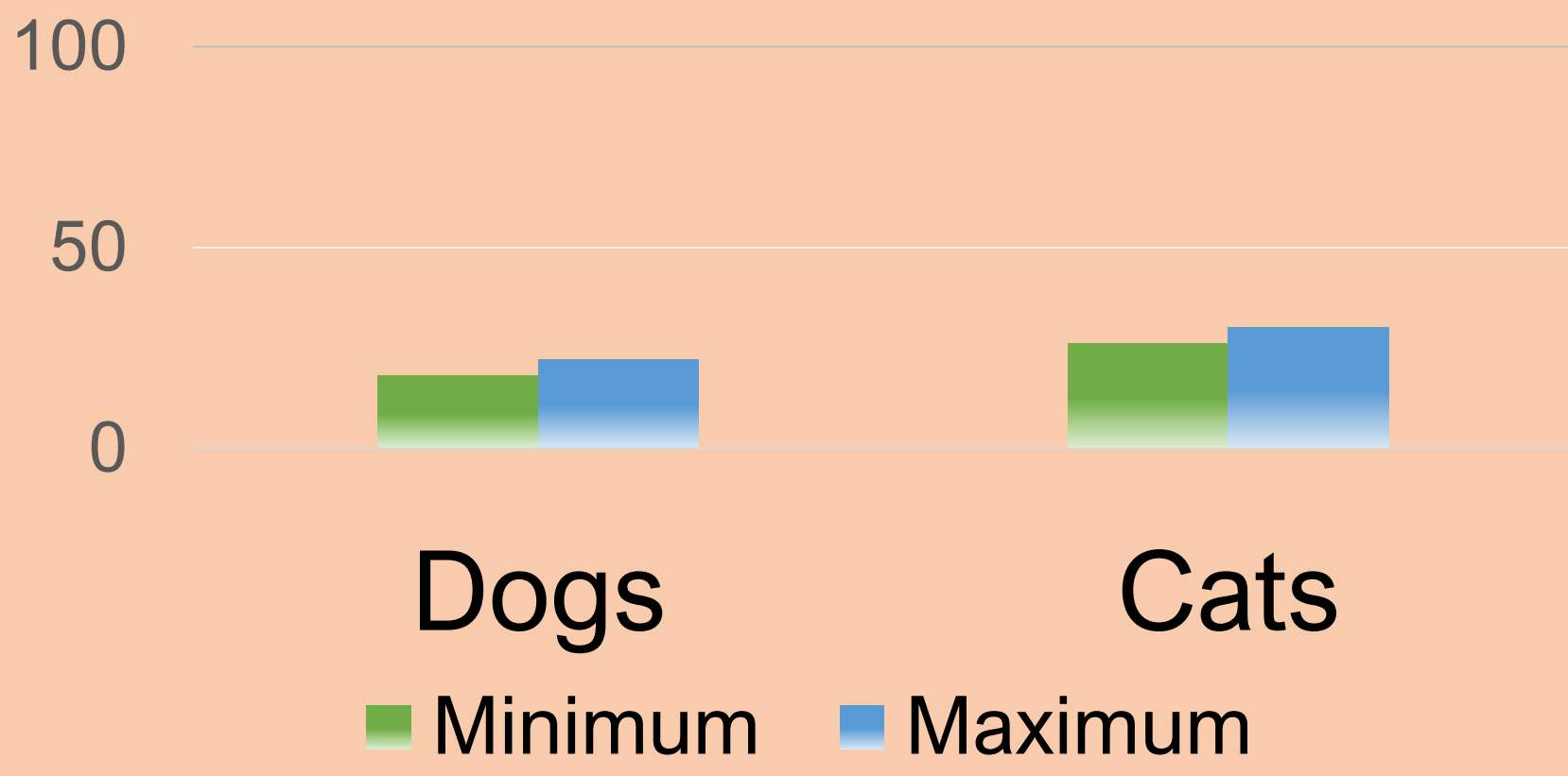
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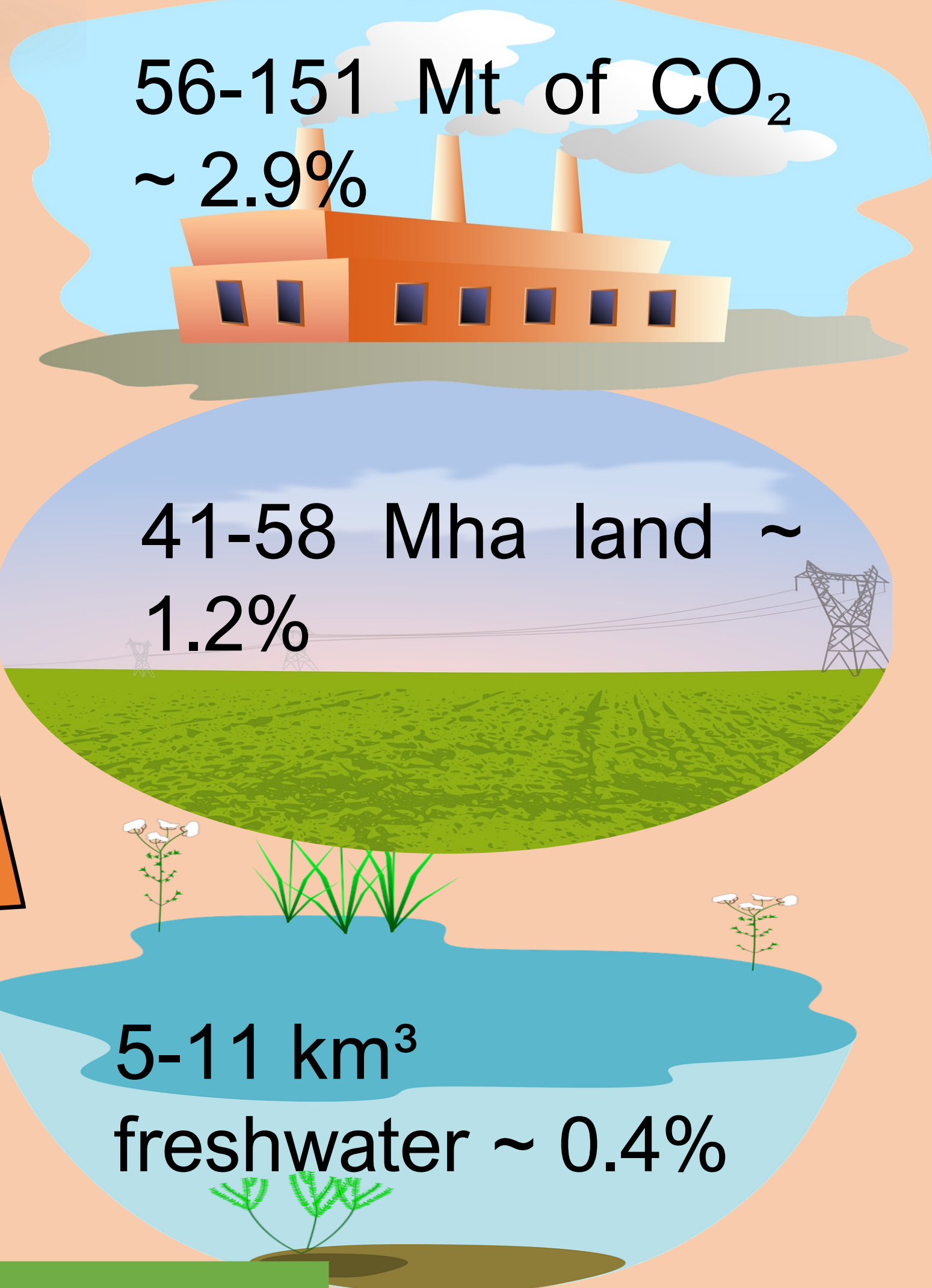
The pet food industry is undergoing significant transformation as **sustainability concerns**, **ethical considerations**, and **nutritional advancements** necessitate the transition to alternative protein sources



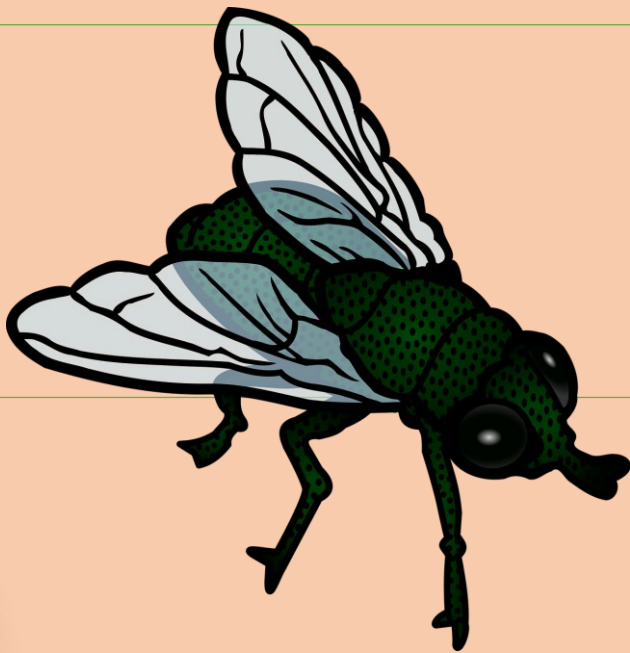
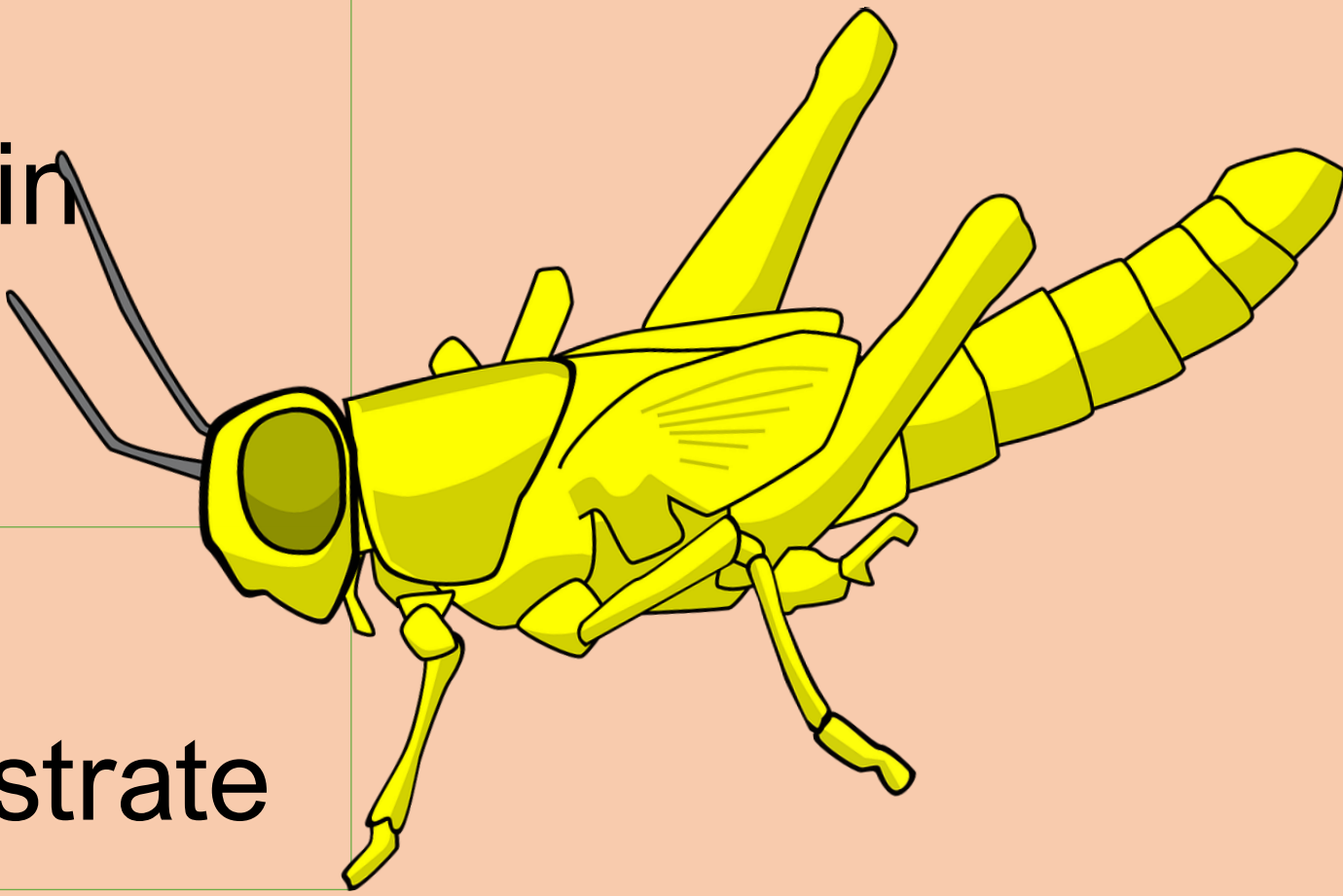
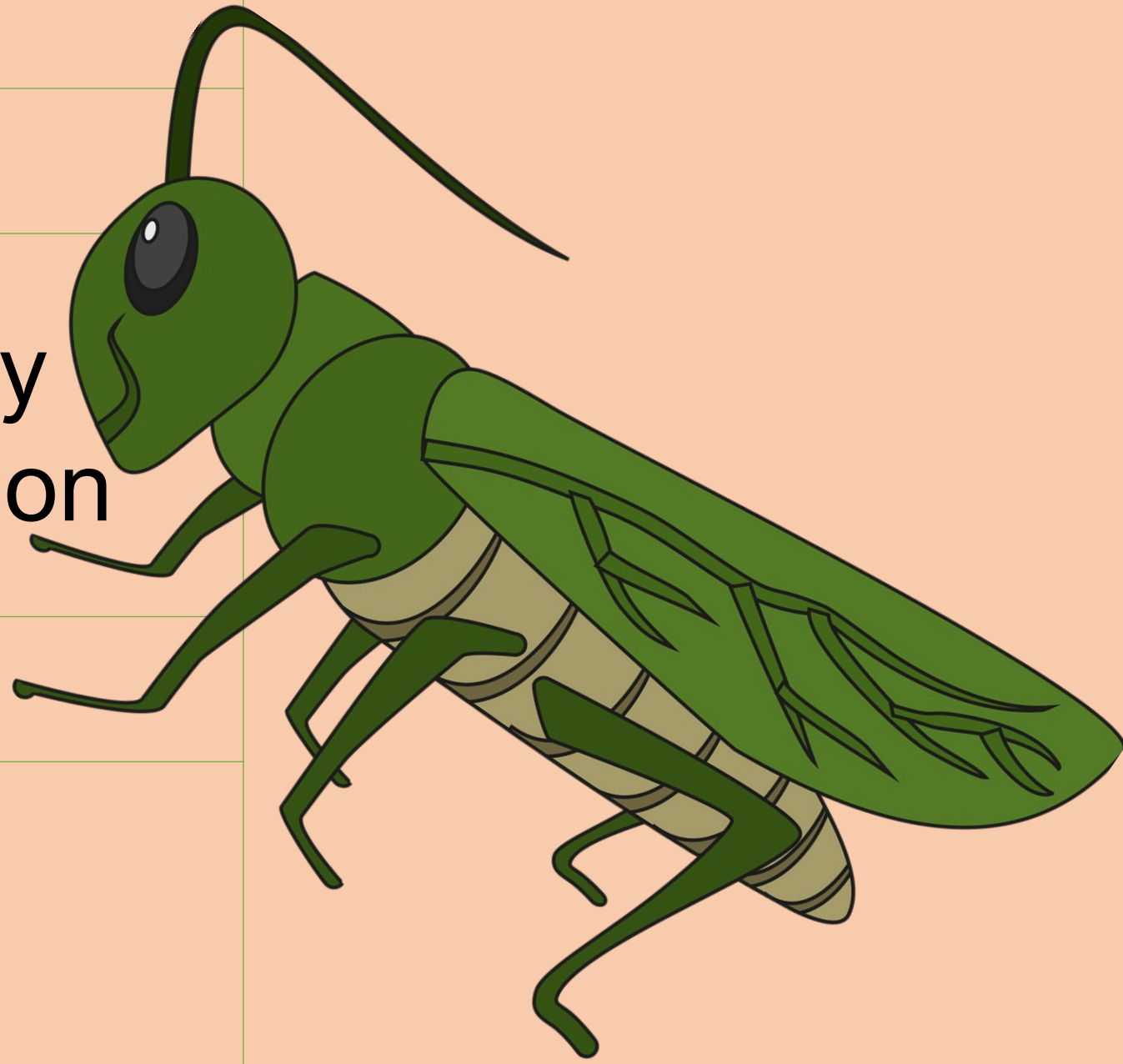
Pet protein requirements



Traditional protein ingredients contribute to **environmental degradation** and **resource depletion**



Nutrient Component	Traditional Proteins (Beef, Poultry, Fish)	Insect-Based Proteins (Black soldier fly, Cricket)	Single-Cell Proteins (Yeast, Algae, Fungi)
Crude Protein (%)	18–30%	25–70%	30–60%
Crude Fat (%)	10–20%	10–50%	5–20%
Essential Amino Acids	Complete profile	Often complete, may vary by species	Often complete, may need supplementation
Digestibility (%)	80–90%	75–90%	70–90%
Fiber (%)	1–5%	5–10% (chitin content)	3–8%
Ash (%)	4–8%	3–10%	5–12%
Omega Fatty Acids	Rich in omega-3 and -6 (fish)	Variable; high in lauric acid (BSFL)	Algae can be rich in omega-3
Environmental Impact	High (CO ₂ , land, water use)	Low	Low to moderate depending on substrate



These alternatives match conventional proteins in nutrition and digestibility, but **safety** and **regulation** pose challenges, including allergenicity, **anti-nutritional compounds**, **contamination risks**, and **stringent standards** for single-cell proteins

Single-cell proteins may require fermentation or treatment to remove anti-nutritional factors

Chitin in insect exoskeletons acts as fiber but can reduce digestibility if not processed