

PETFOOD FORUM

Where the GLOBAL PET FOOD
INDUSTRY does business

Flavor Preference in Cats Across Life Stages

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AFB International

*It's a strategy rooted in science, built for performance,
and tailored for pets across their entire lifespan.*

#petfoodforum

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The leader in pet food palatability



Palatability

Sensory appeal
that stimulates
consumption

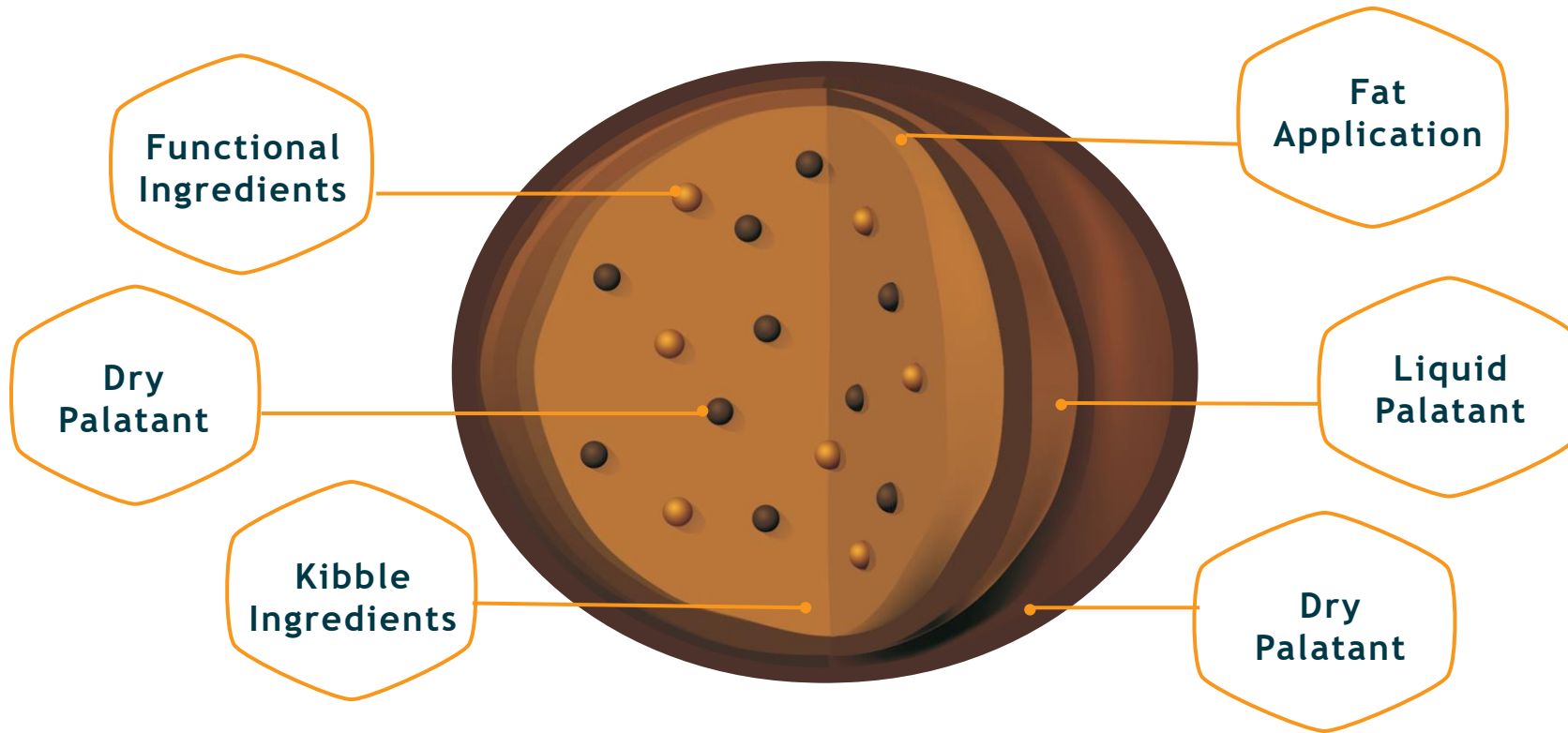
Partnership

Formulation
support and
collaboration

Performance

Proven solutions
for your specific
needs

Palatant Application



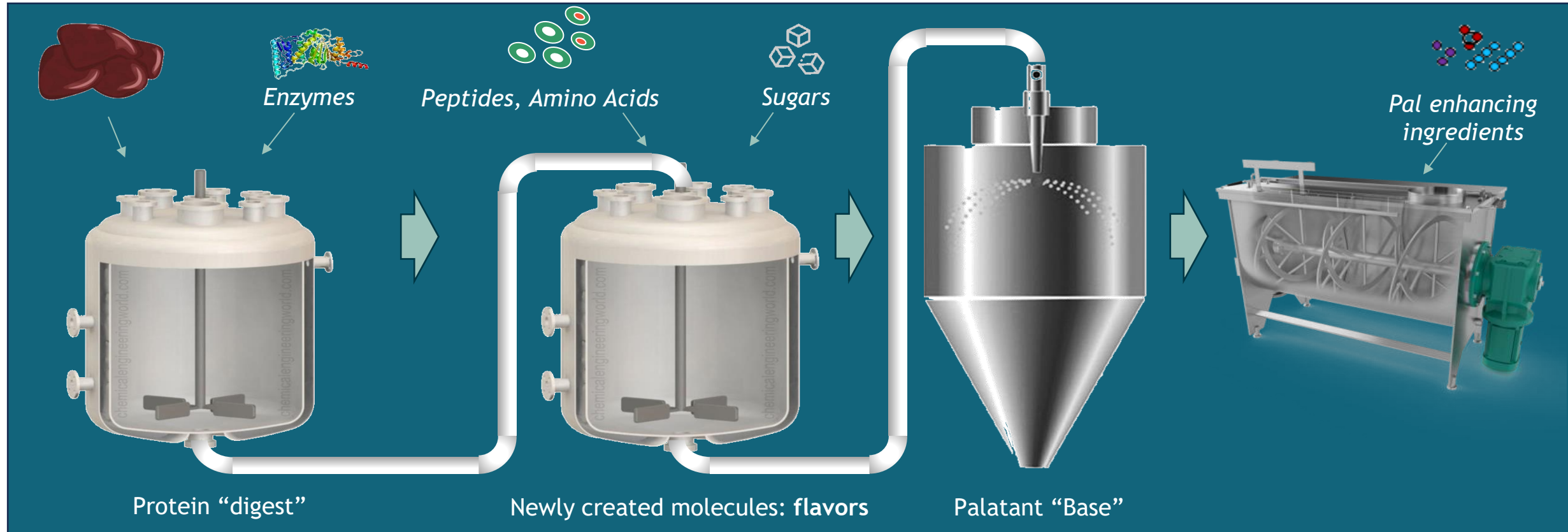
Palatant Development

Protein hydrolysis

Reaction Chemistry

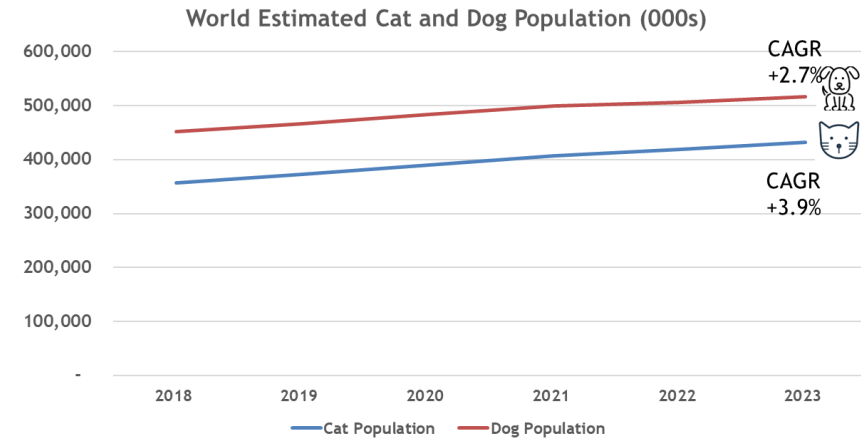
Drying

Blending



How Pets are Driving Flavor Innovation?

Dog ownership is often higher



Cat ownership is on the rise



59% of global pet owners are **cat owners**

An increase of **6%** over last year

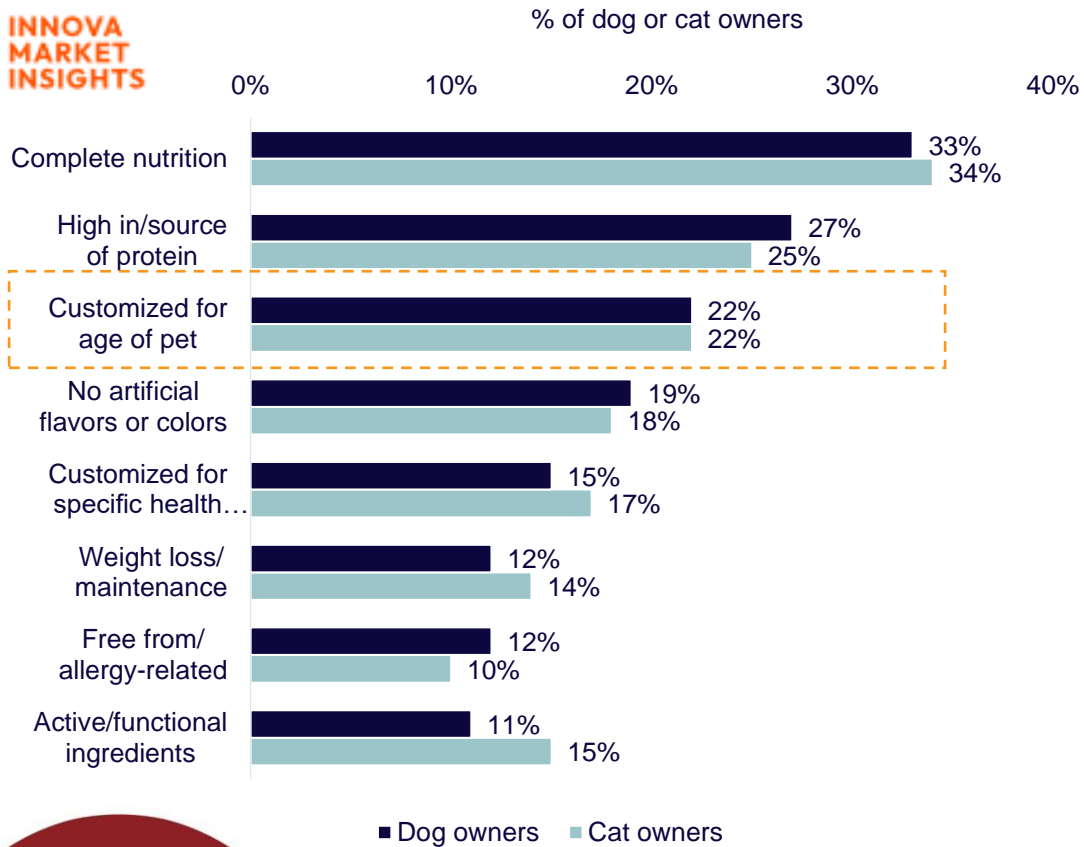


37% of global **cat owners** have **more than 1 cat**

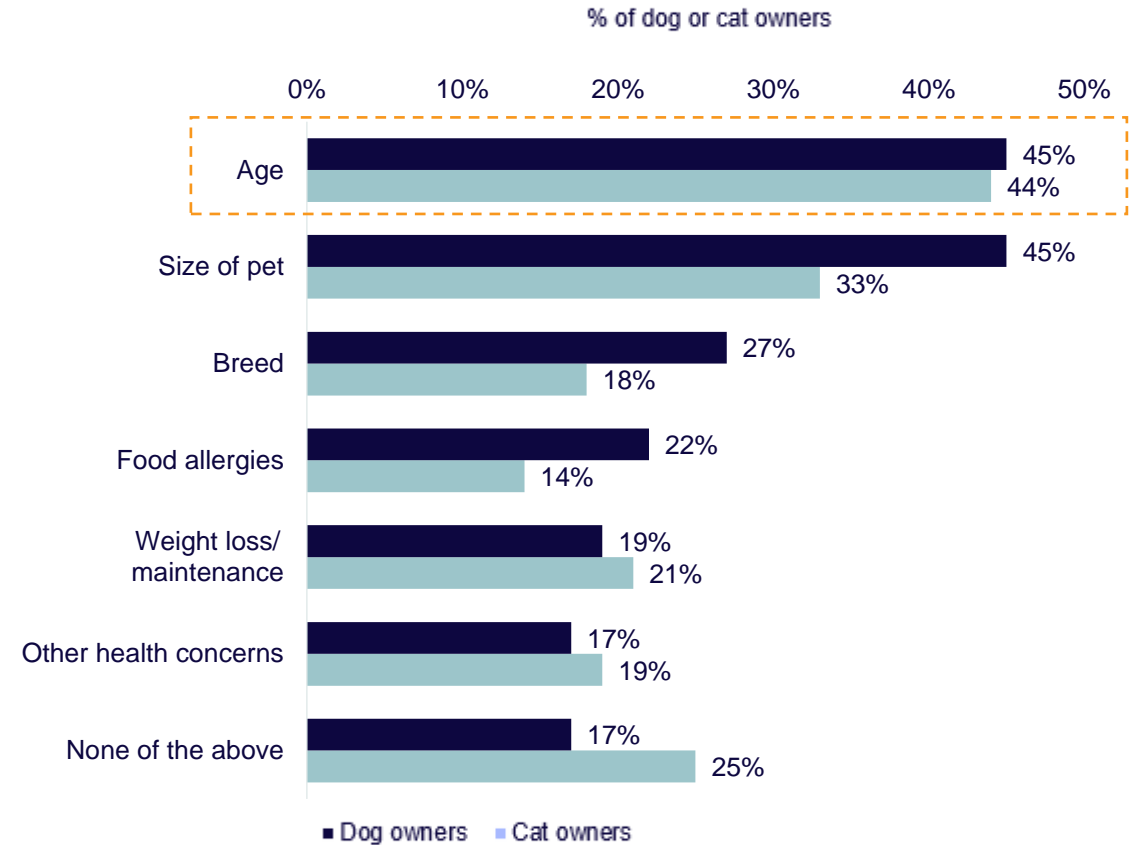
An increase of **3%** over last year

“Age is the #1 tailored pet food attribute for both Cats & Dogs” (US, 2024)

Which dog or cat food claims influence your purchase decision?



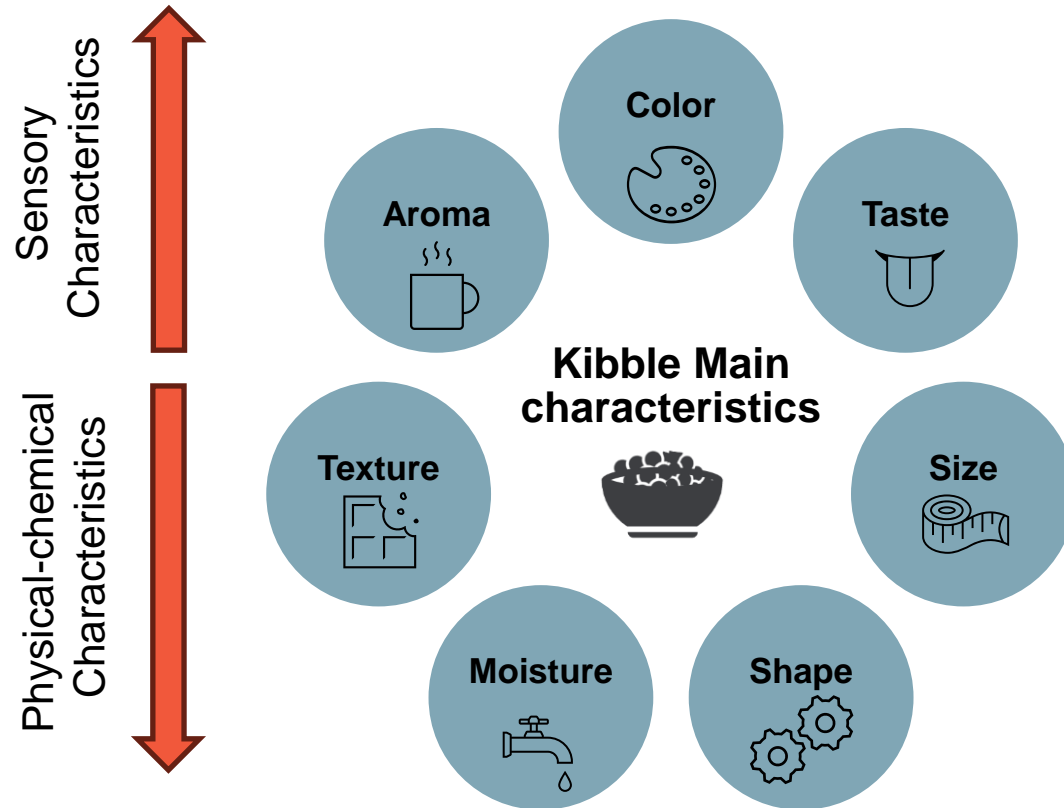
In the past year I have purchased dog or cat food that is tailored to my dog or cat in terms of...



- Innova Pet Ownership Survey 2024, fielded in October to November 2023. Based on respondents who own at least one dog and/or cat\
- US only; N = 1,009, including 751 dog owners and 582 cat owners (not mutually exclusive).

What is Palatability?

Palatability drivers



&



Animal Specificities

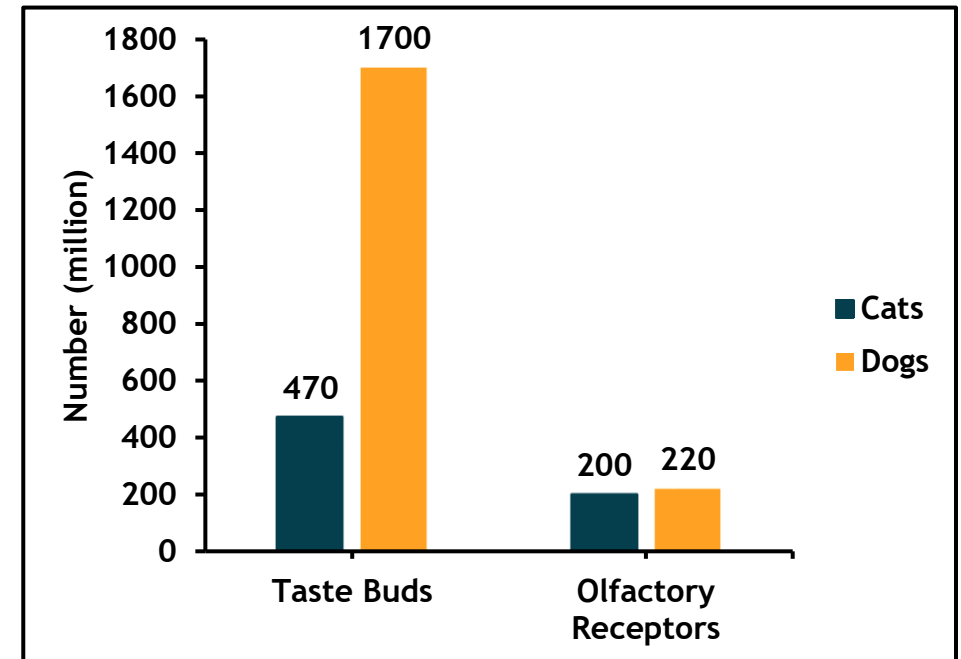
- Feeding behavior
- Individual Preferences
- Aging and health conditions

Facts

Smell dominates food preference: Dogs and cats rely more on olfaction than taste when selecting food (Bradshaw, 2006).

Taste receptors vary by species: Dogs have ~1,700 taste buds, while cats have ~470, compared to ~9,000 in humans (Jiang et al., 2012).

- **Olfaction:**
 - ❖ Dogs: ~220 million olfactory receptors (Gazit & Terkel, 2003).
 - ❖ Cats: ~200 million receptors, favoring meaty, prey-like aromas (Hudson et al., 2018).

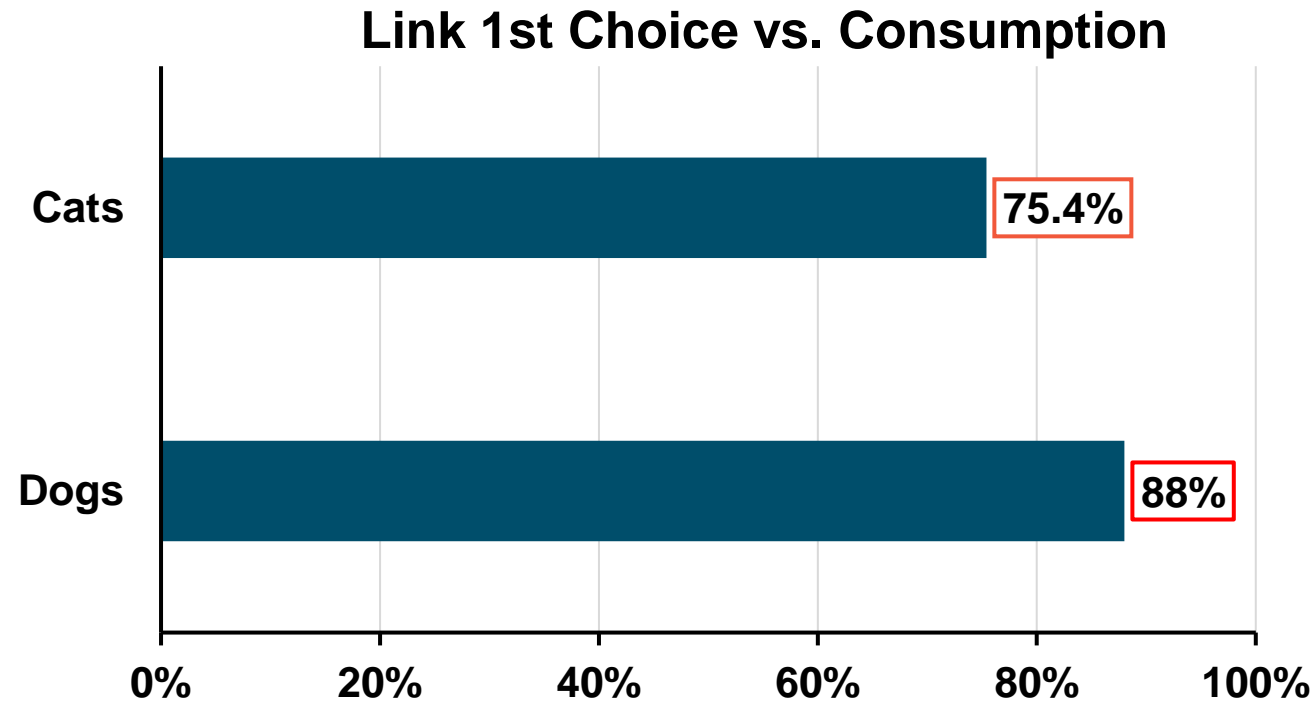


Taste and Smell are crucial in Food Selection

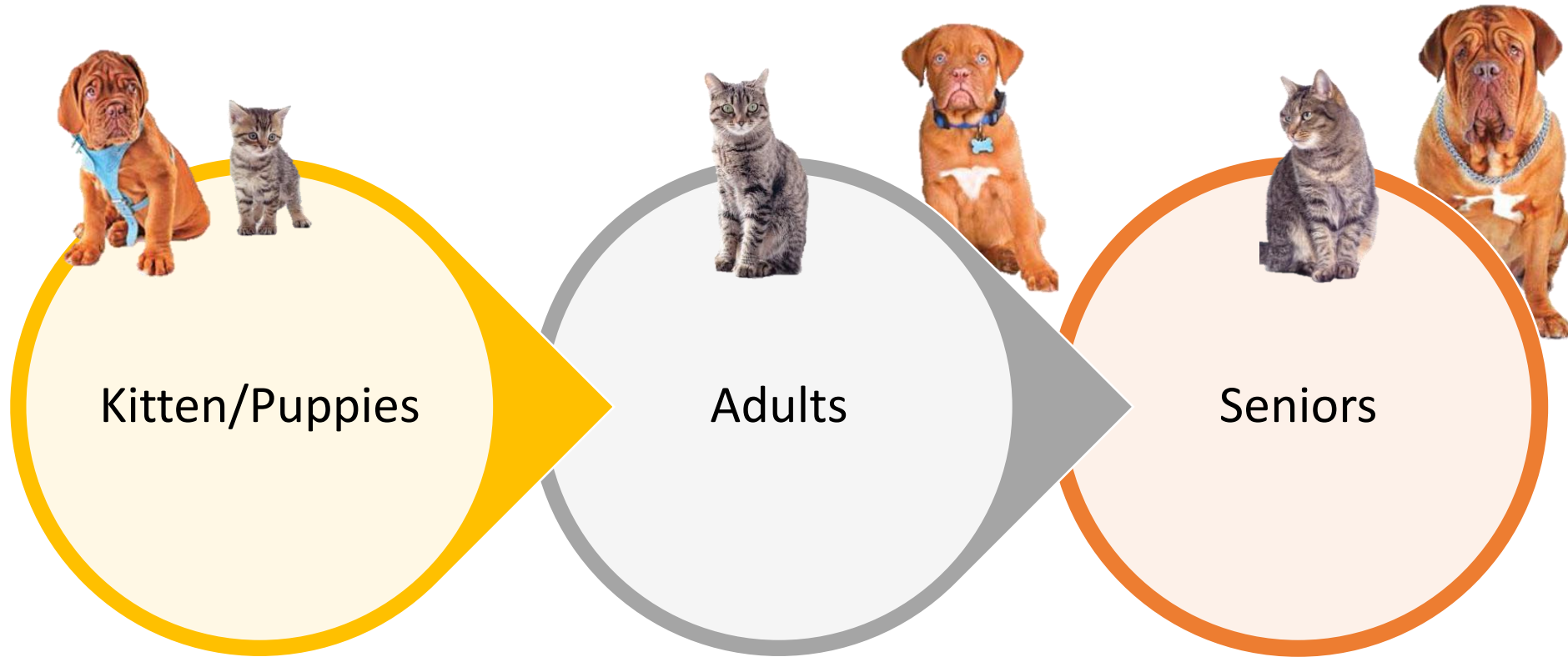


Smell dominates food preference: Dogs and cats rely more on olfaction than taste when selecting food

(~ 1500 versus test (2023))



Flavor Needs Change Across Pets' Life Stages



- Transitioning from milk to solid food.
- Need highly palatable, to ease the transition from milk to solids.

- Maintaining consistent intake and managing picky eating.
- Need of dietary variety

- Reduced appetite, diminished senses and health-driven dietary changes

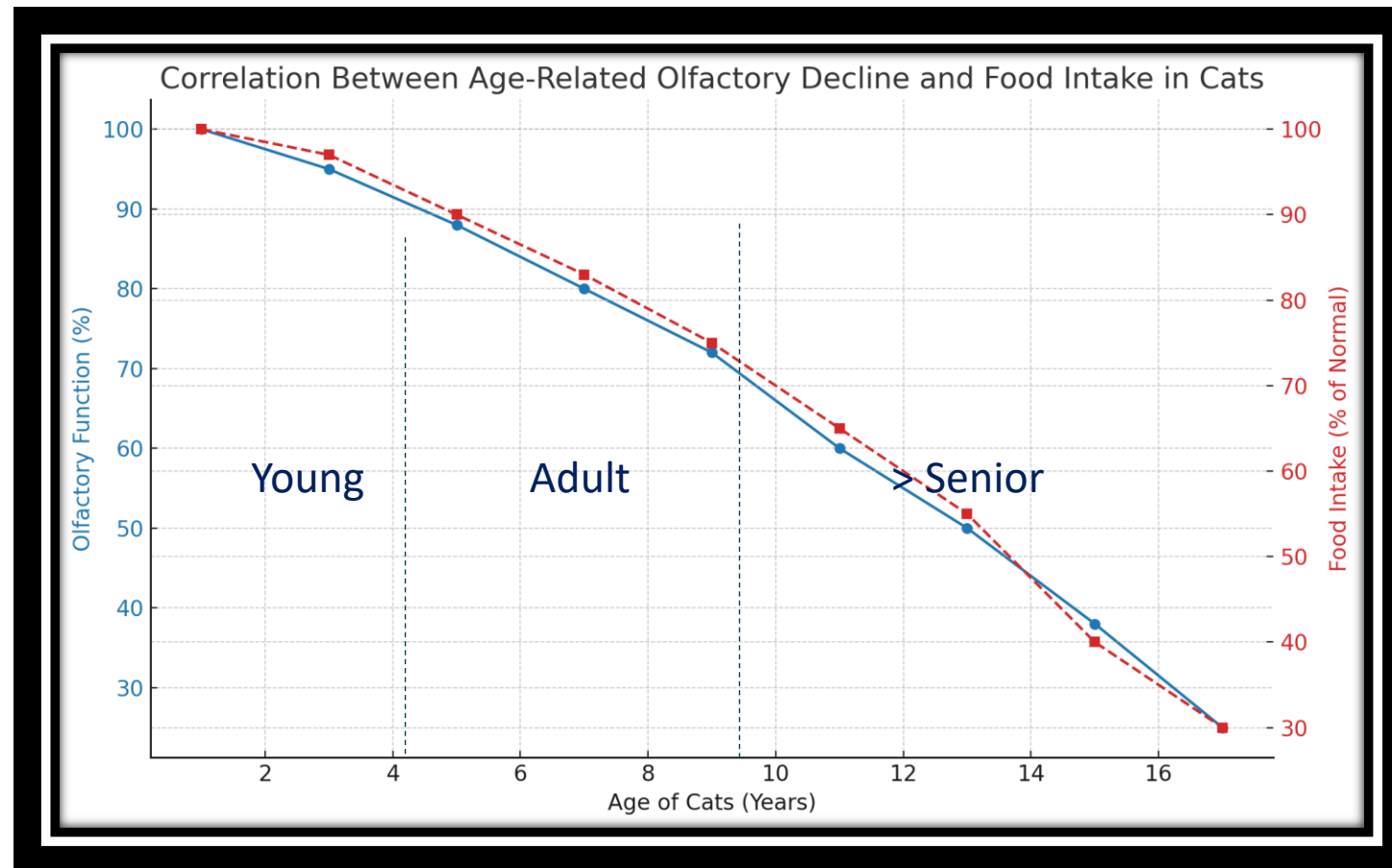
Defined Life Stages



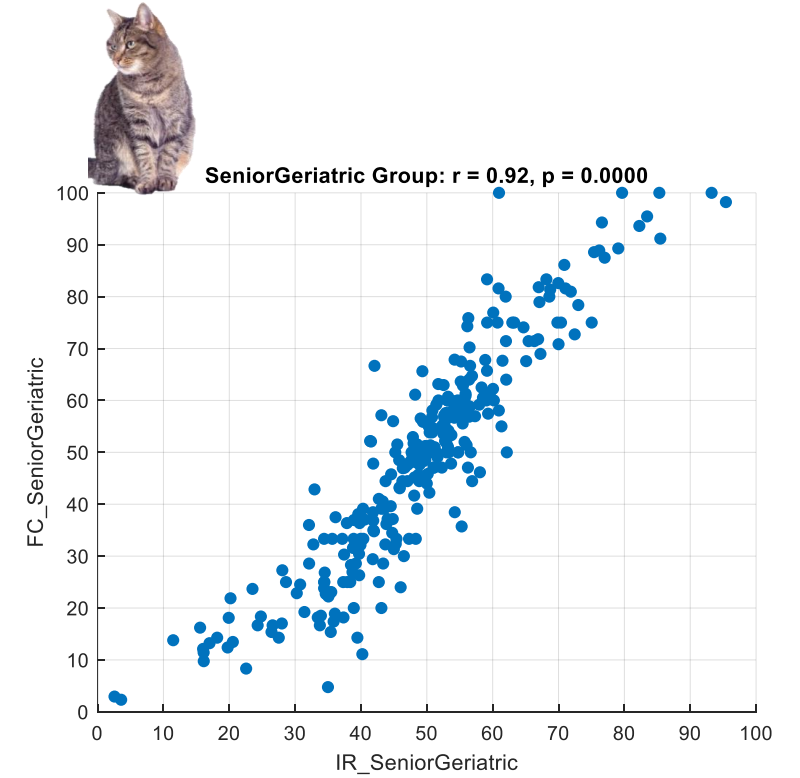
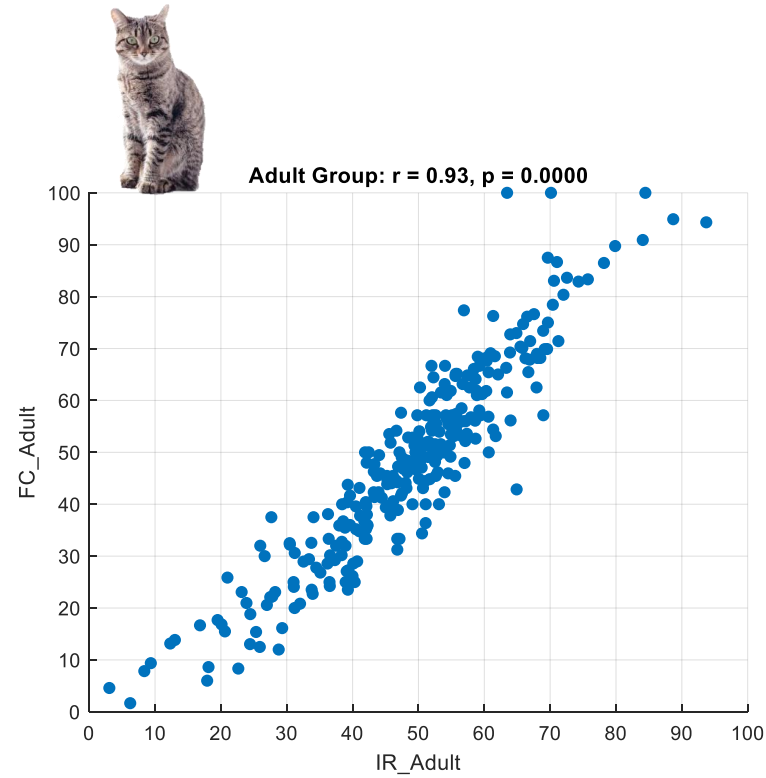
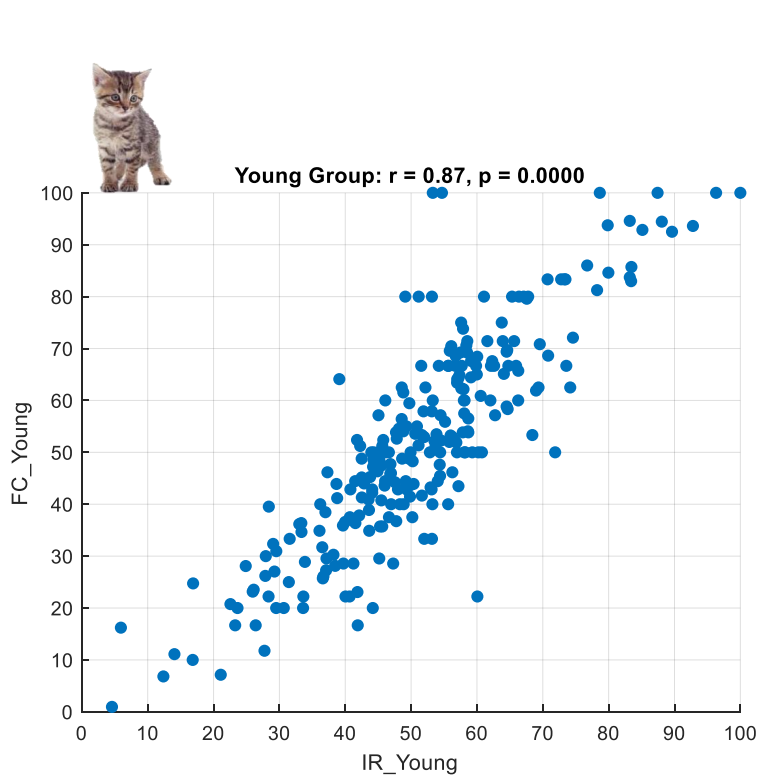
Life Stage	AAHA	ISFM	AFB International
Kitten	< 1 year	< 6 months	
Junior/Young Adult	1 – 6 years	7months – 2 years	1 - 3 years
Adult	-	3 – 6 years	4 - 9 years
Mature Adult	7 – 10 years	7 – 10 years	
Senior	> 10 years	11 – 14 years	10 – 13 Years
Geriatric		15+ years	14 + years

Scientific Evidence – Olfactory Decline in Aging Cats

Stronger-scented food and palatants can help counteract this effect and maintain proper nutrition

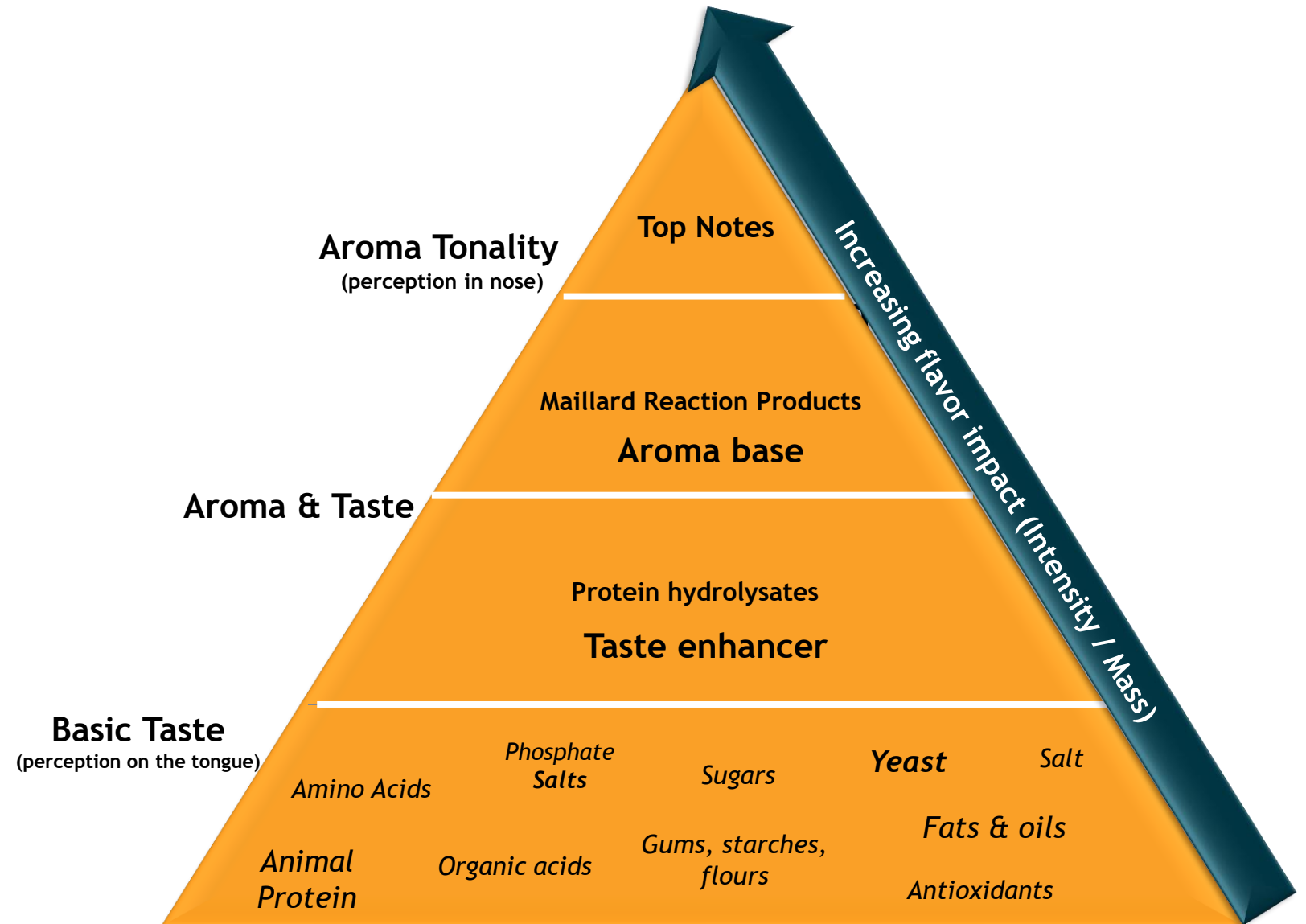


Intake Ratio vs. First Choice Correlation



Flavor Building

- **Base Taste**
Perception on the tongue
- **Aroma & Taste**
Body, Mouthfeel
- **Aroma**
Perception in nose



Flavor Modelling and Database Integration

Volatiles Analysis



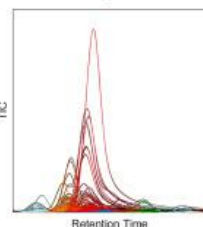
GC-QTOF-MS

SPME-ARROW

GC-MS
Untargeted profiling

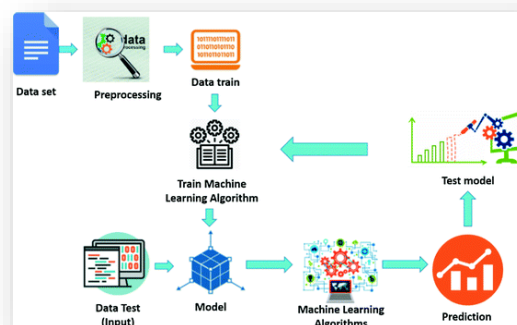
Expert system
- Automatic peak area selection
- Automatic curve resolution
- Automatic identification of compounds

Resolved peaks
Peak table
Mass spectra



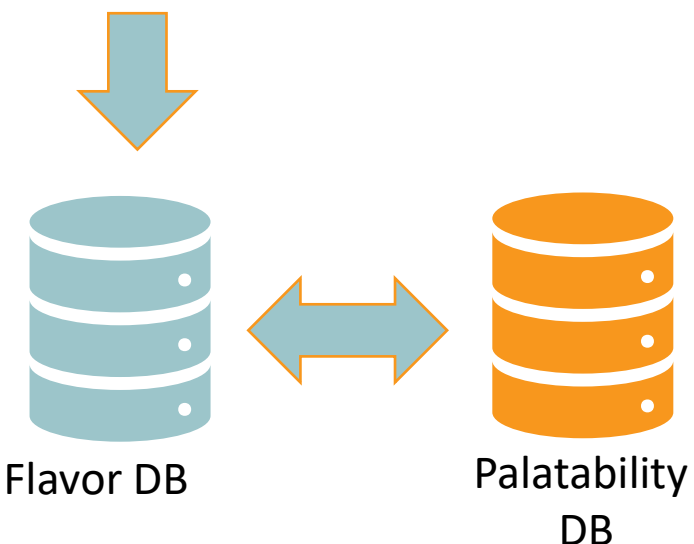
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Modelling using linear and machine learning algorithms

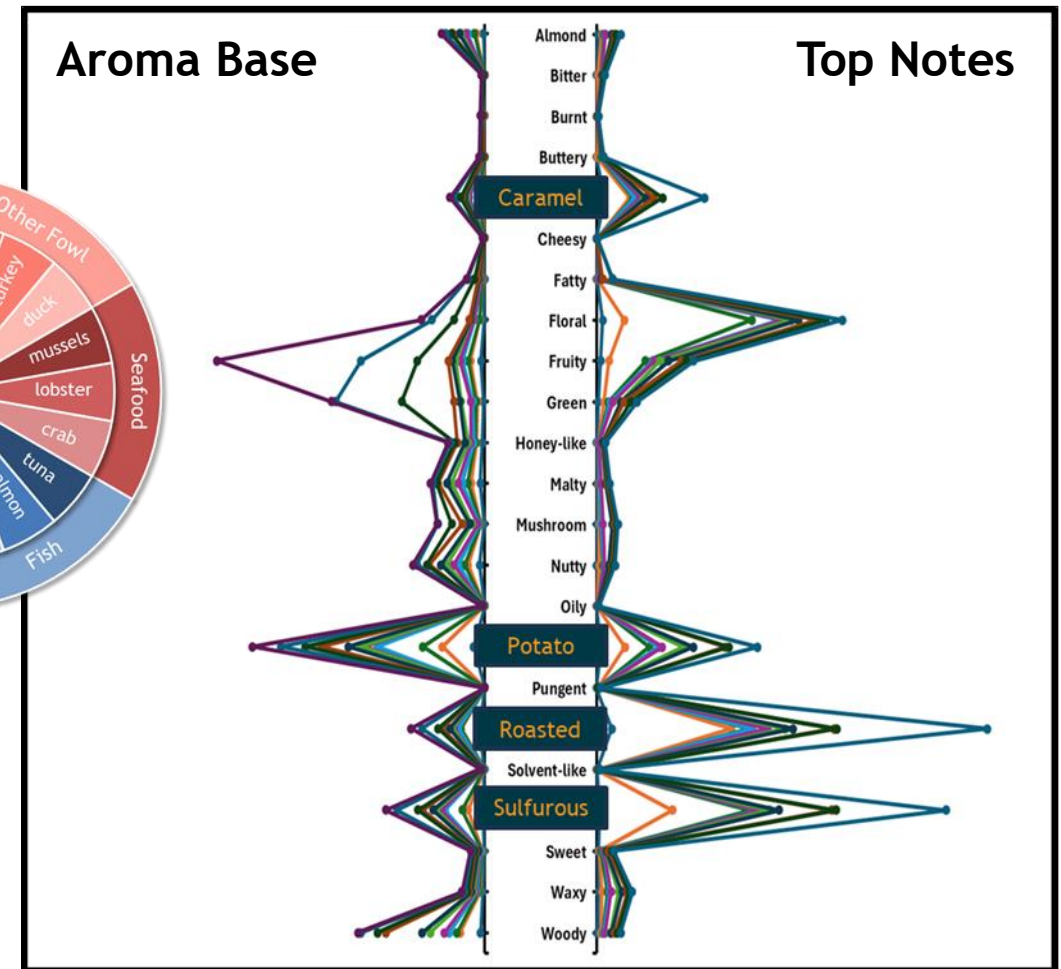
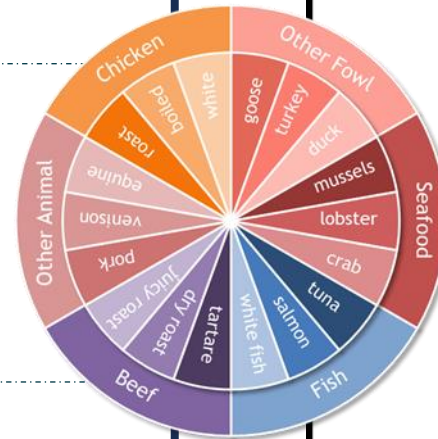
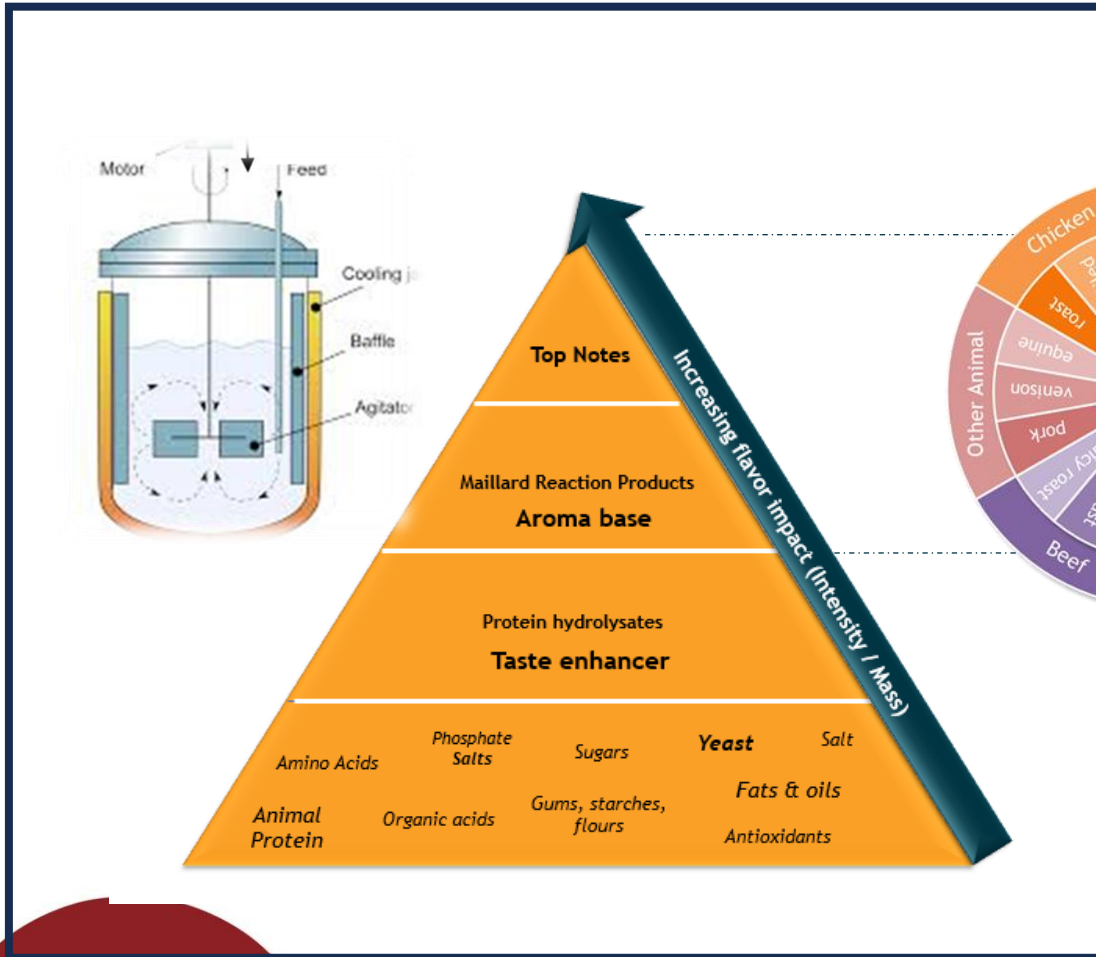


	OPLS-DA	Random Forest
Type of Model	Linear multivariate method	Non-linear, ensemble learning method
Mechanism	Decomposes variation into predictive and orthogonal components	Builds multiple decision trees, averages or votes on results
Data Assumptions	Assumes linear relationships between variables	No assumptions about the form of relationships
Interpretability	High - clear visualization through score plots and VIP scores	Moderate - feature importance provided, but less intuitive
Feature Importance	Uses VIP scores to rank feature importance	Provides feature importance based on tree splits
Prediction Power	Strong for linear problems	High predictive accuracy, especially for non-linear data
Risk of Overfitting	Low to moderate - requires cross-validation	Low - ensemble approach reduces risk of overfitting

From molecule to flavor language

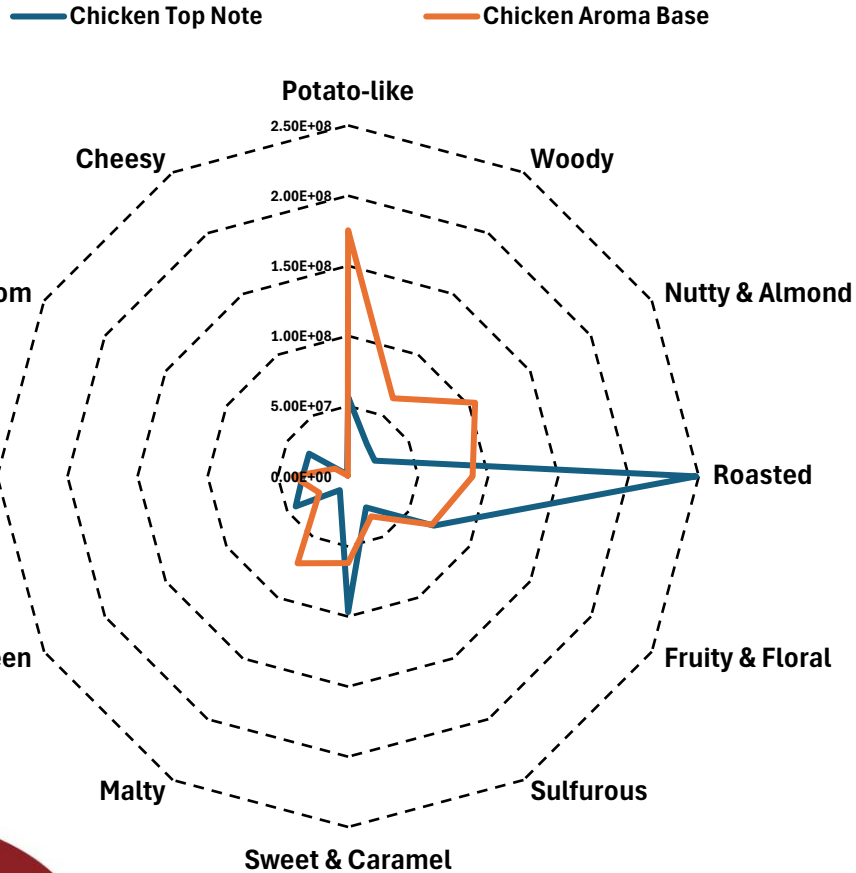


Tailoring Aroma Tonality Through Process Conditions

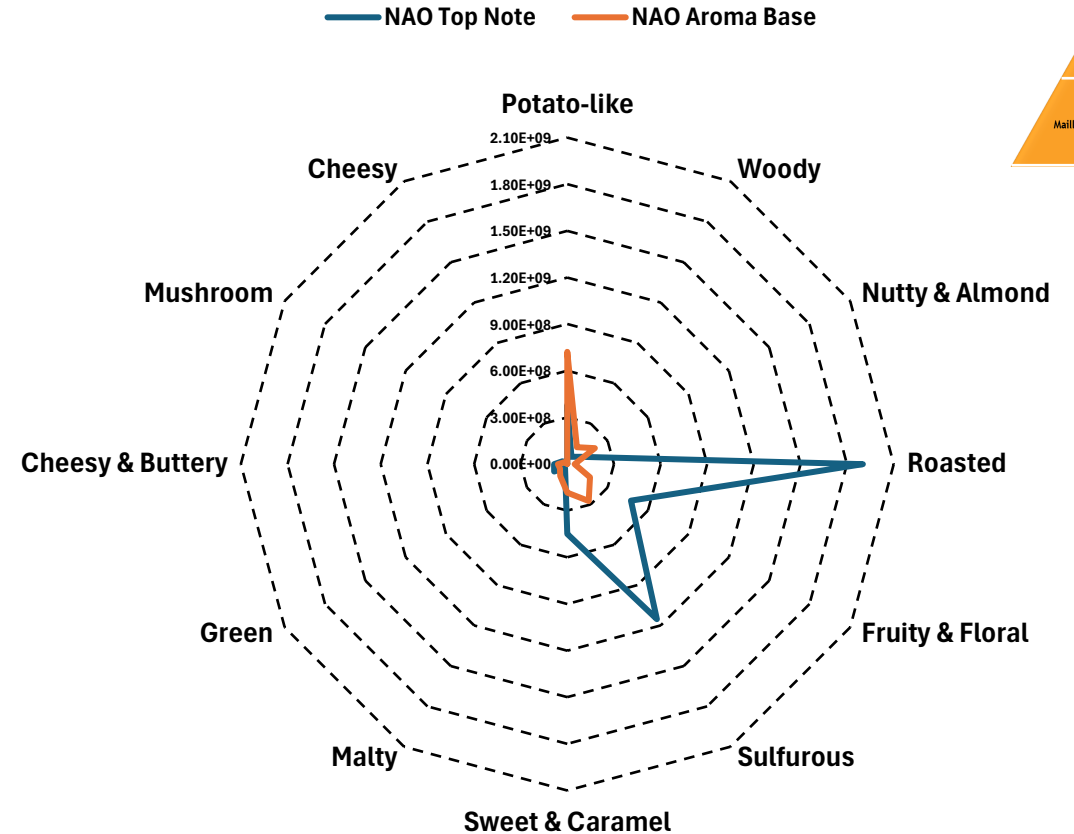


Tailoring Aroma Tonality Through Process Conditions

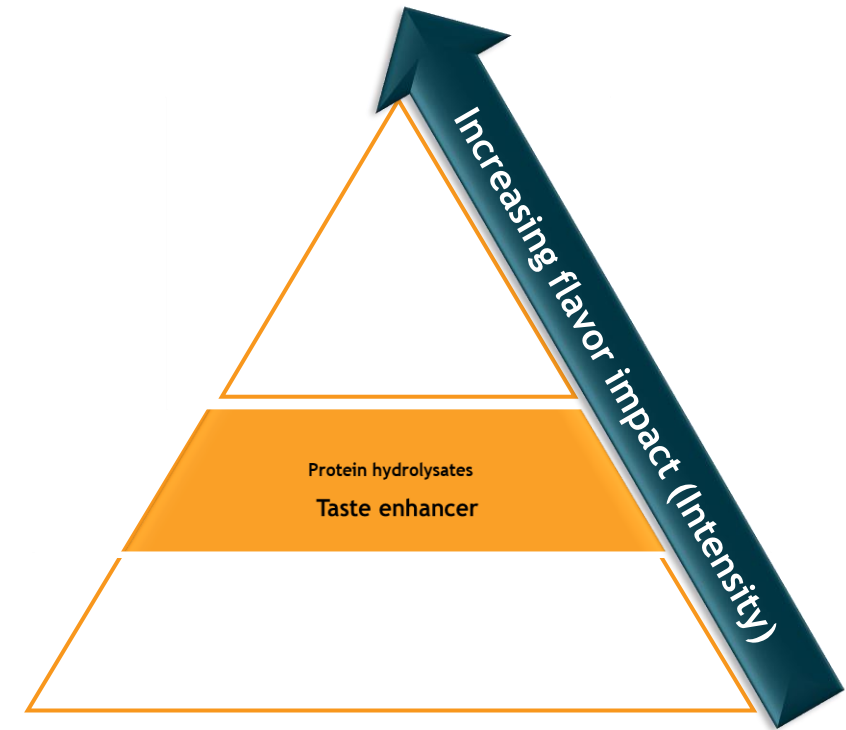
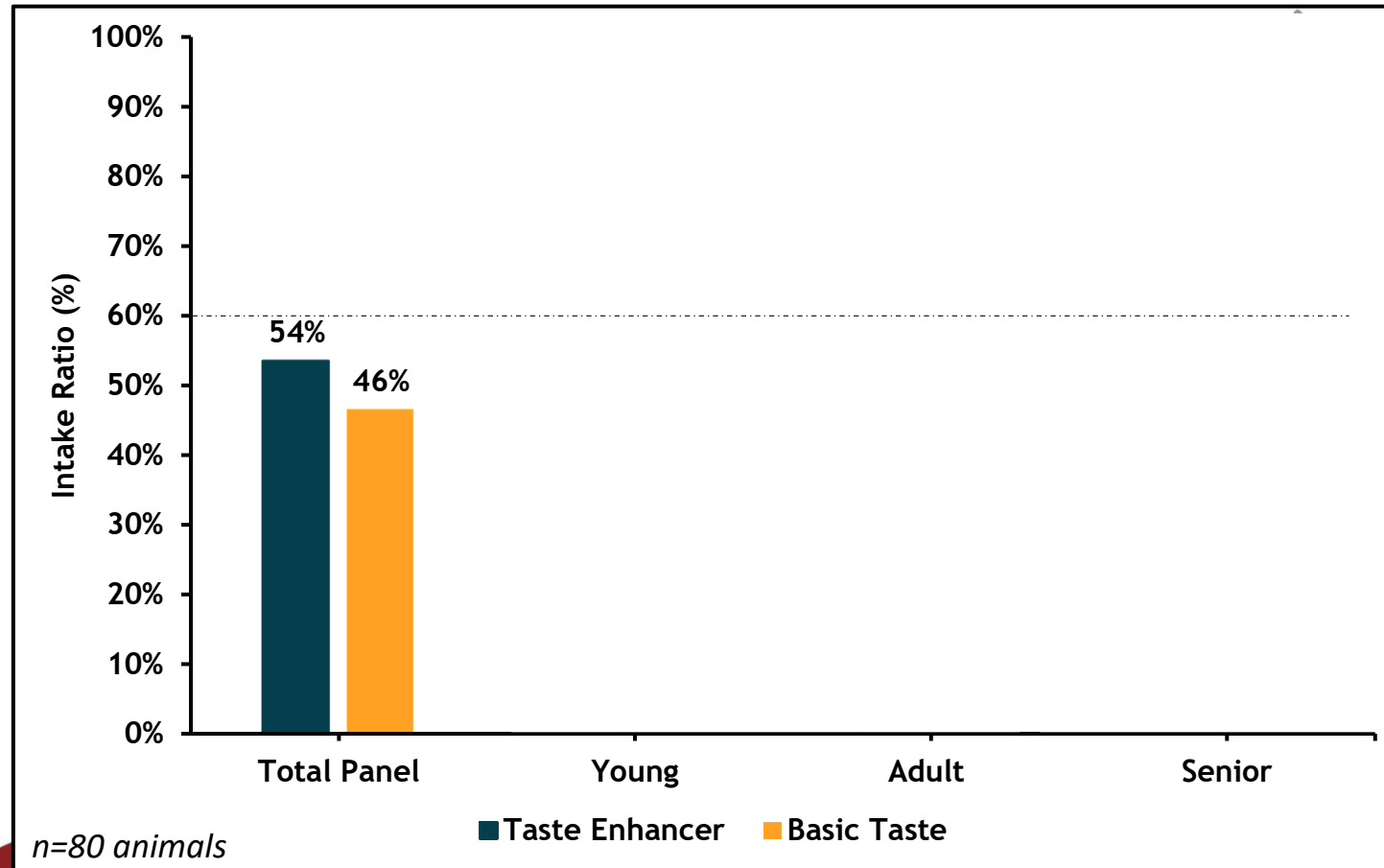
Animal based Chicken bases



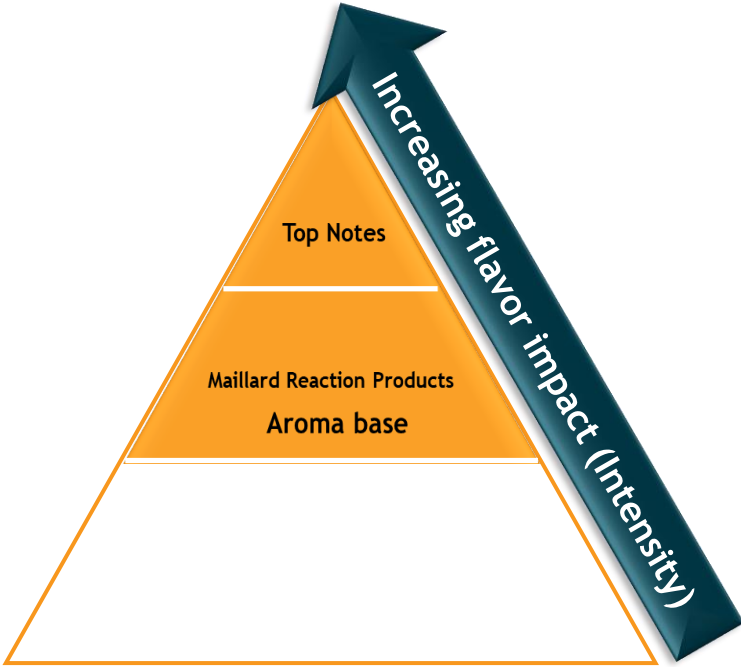
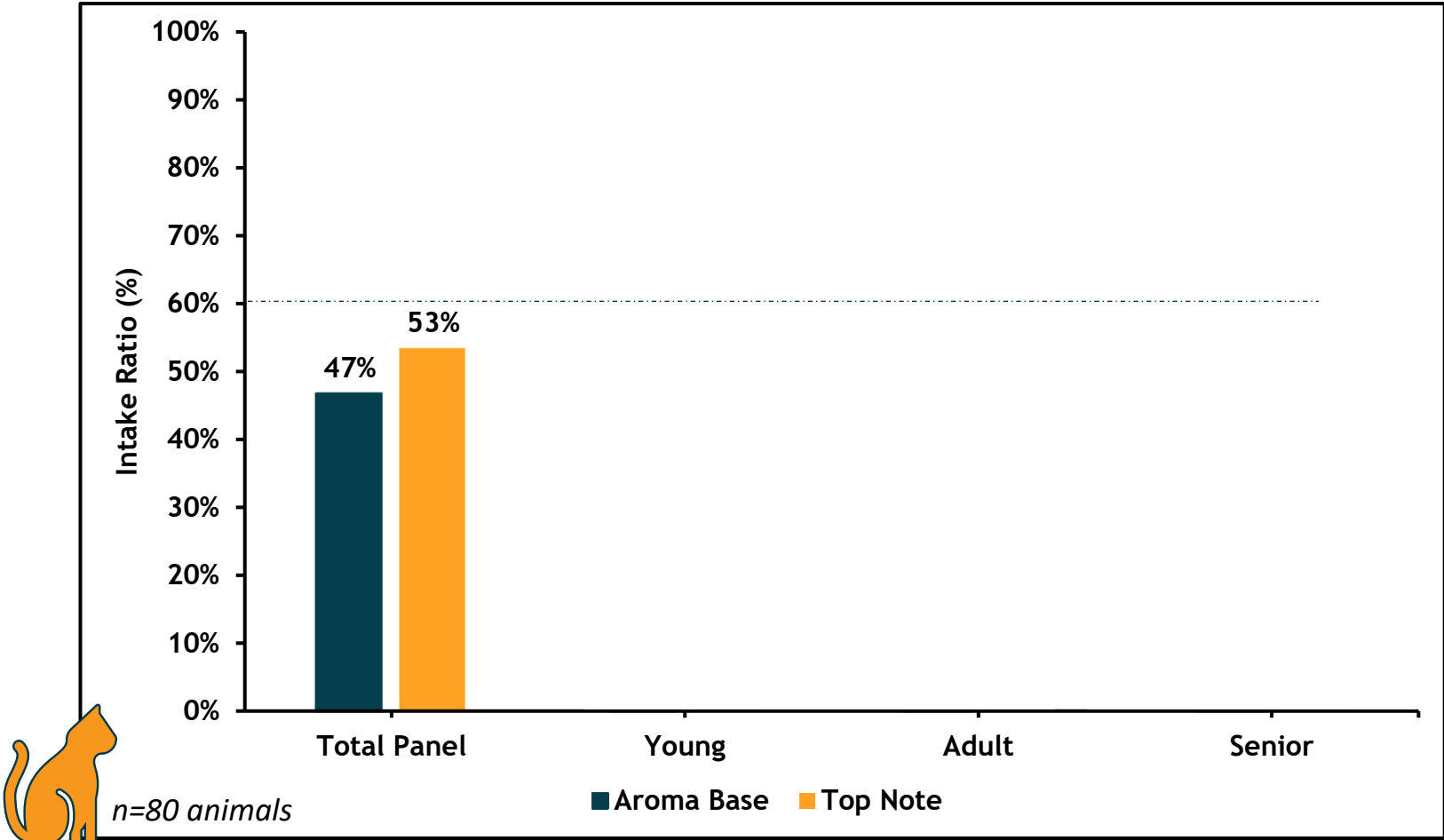
NAO “Chicken-like” bases



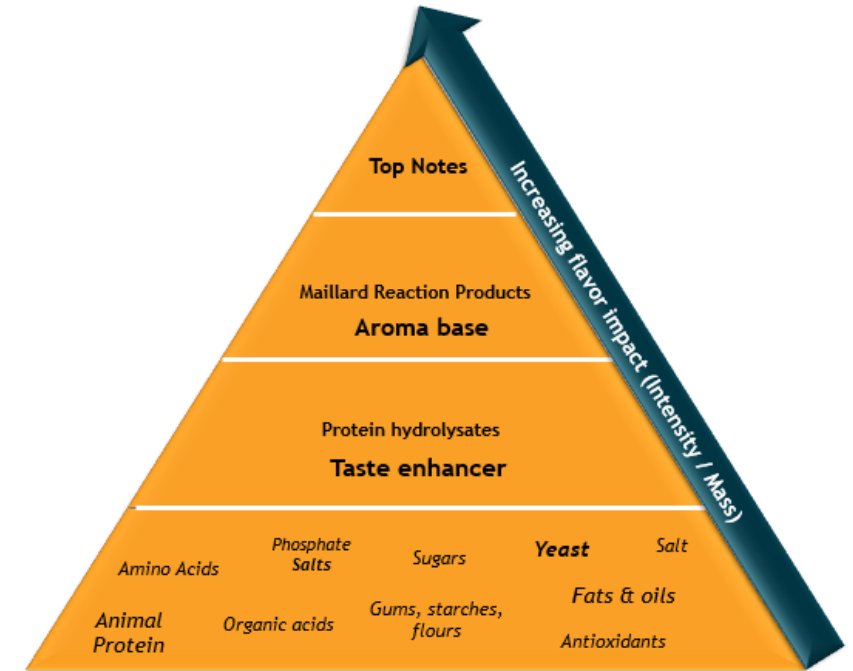
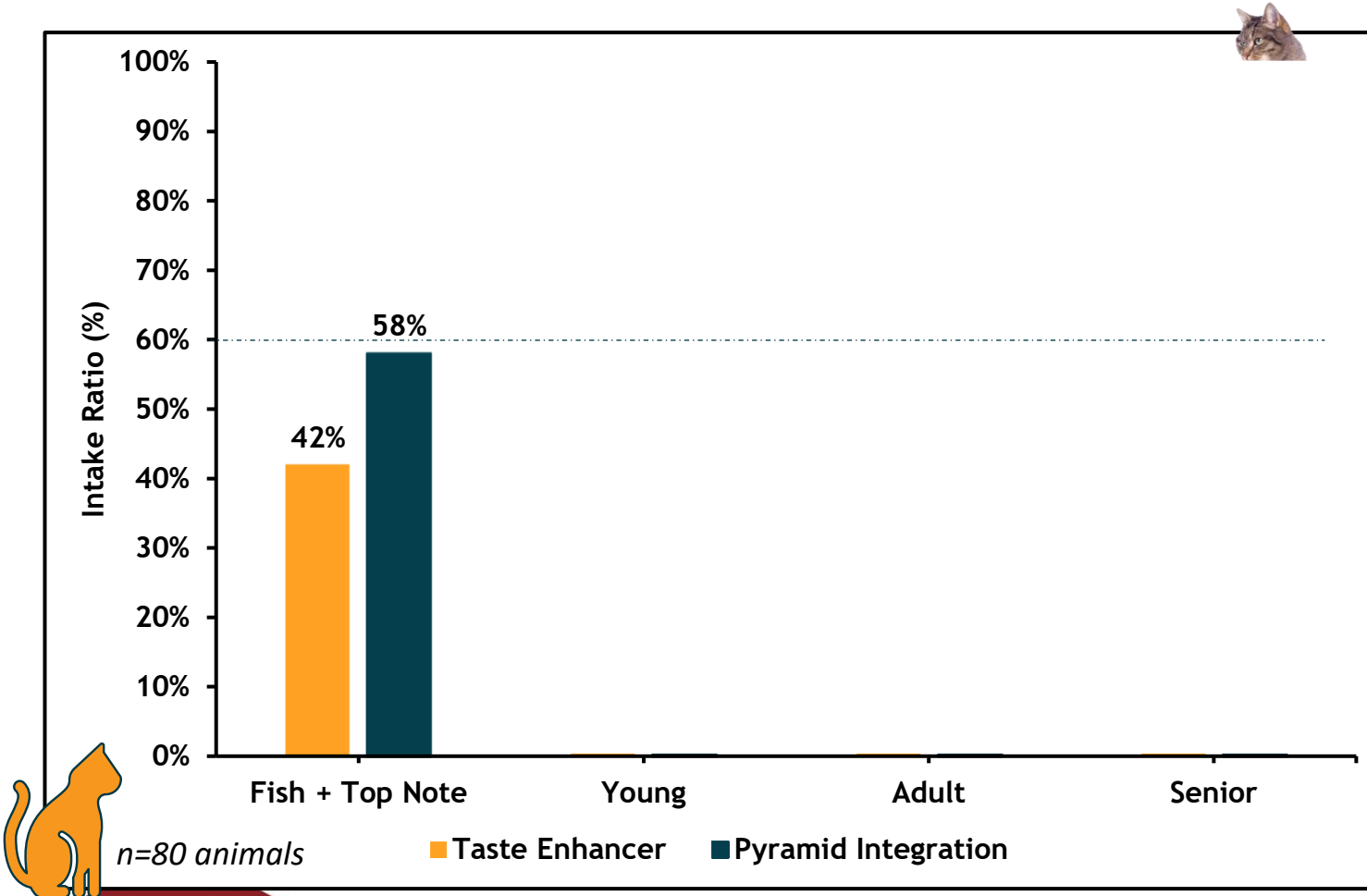
Does flavor impact CATs preference across life stages?



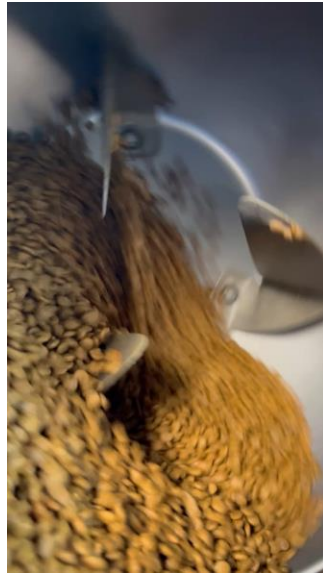
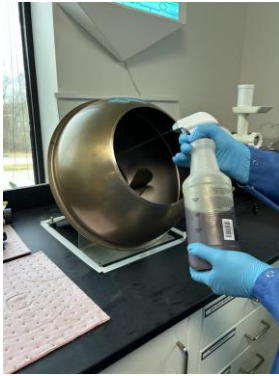
Can top notes further enticer preference in CATS ?



Tailor made palatant developed for senior cats



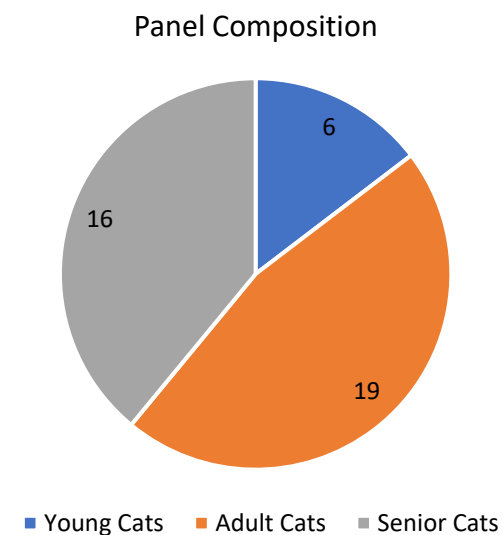
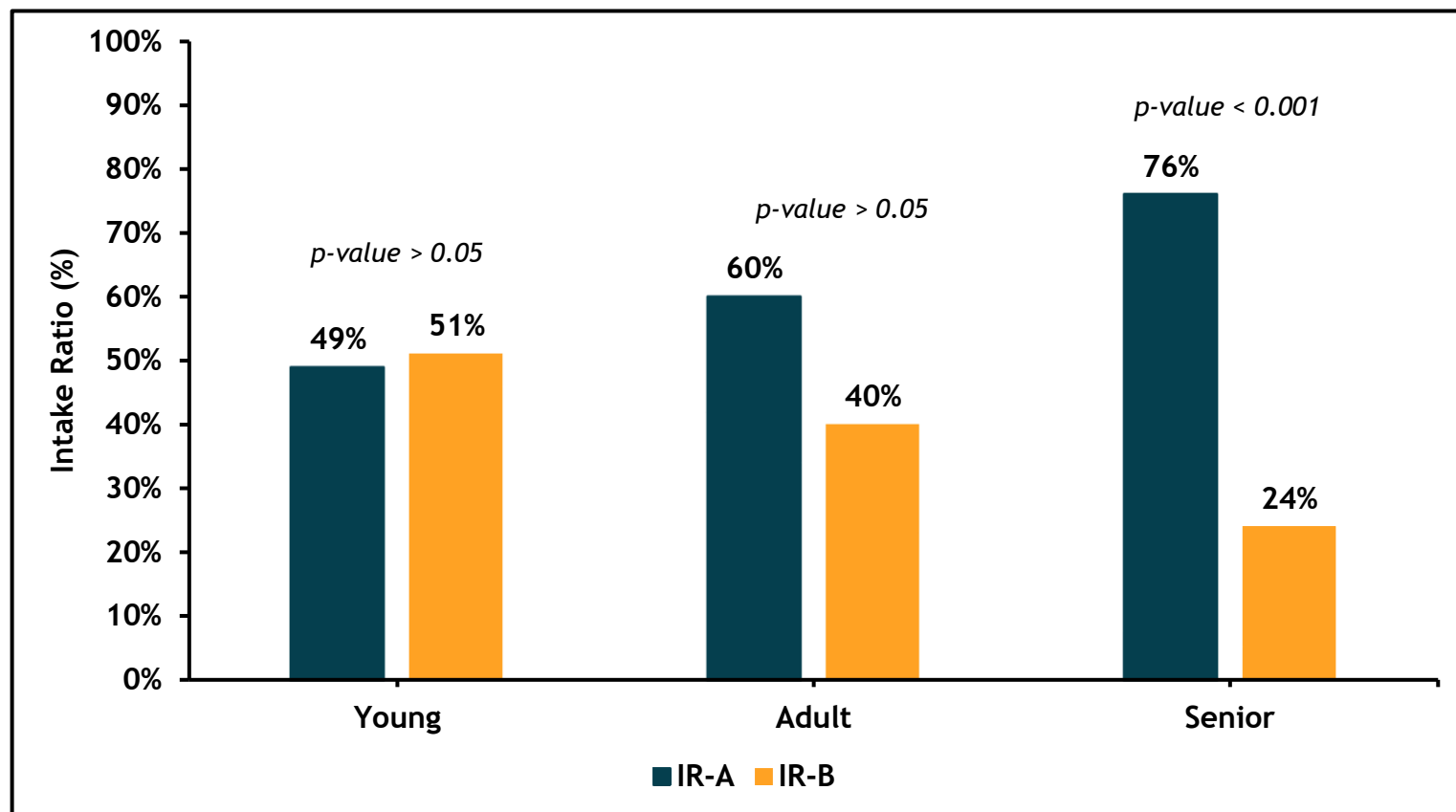
Validation Methodology



Method 1: Cats were moved to individual kennels to allow for private eating. 25g of each ration was offered over a duration of 30 minutes per exposure.

Method 2: A single cat was fed at a time in an arena to allow for private feeding. 15g of each ration was offered over a duration of 1 minute per exposure. Two bowls denoted as “A” and “B” were offered to each cat over 2 days. Bowl placement was reversed daily to negate handedness. Bowls were removed when trial time was complete or when the equivalent of one ration was consumed. First approach and amount consumed were recorded. Two methods were used to capture a larger population.

Validation Results



Palatant Development

1. Palatability is Multi-Dimensional

Effective palatants combine **taste, aroma, and texture**, and their impact varies by species and life stage.

2. Life Stage Matters

As cats age, **sensory acuity declines**—especially olfaction. Palatants must be tailored to support aging animals.

3. Layered Flavor = Broader Acceptance

Aroma bases and top notes **enhance first choice and intake**, especially in adults and seniors.

4. Data-Driven Formulation Works

Combining analytical chemistry, machine learning, and sensory data allows for **predictive palatant development**.

5. One Pyramid, Many Profiles

By integrating all levels of the **flavor pyramid**, we can build **tailor-made palatants** that perform across life stages—**enticing for seniors, enjoyable for adults, and acceptable for the young**.



Thank you

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*Bring flexibility and palatability to your formulation toolbox,
all supported by the expertise of AFB International*