

CUSTOMER REQUIREMENTS

Copenhagen, November 15th 2018

FROM PET FOOD -
PALATANT PERSPECTIVE



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Agenda

- Company introduction
- Product and application
- Requirements fish based ingredients
- Conclusion - Research questions

Company AFB International



AFB International

Palatability enhancers (flavours) for pet foods.

We make pet food taste better

At AFB International, we're serious about quality. We partner with pet food manufacturers to create better-tasting dog and cat foods, meeting the specific needs of the pets and pet owners.



The Organization - Global Presence

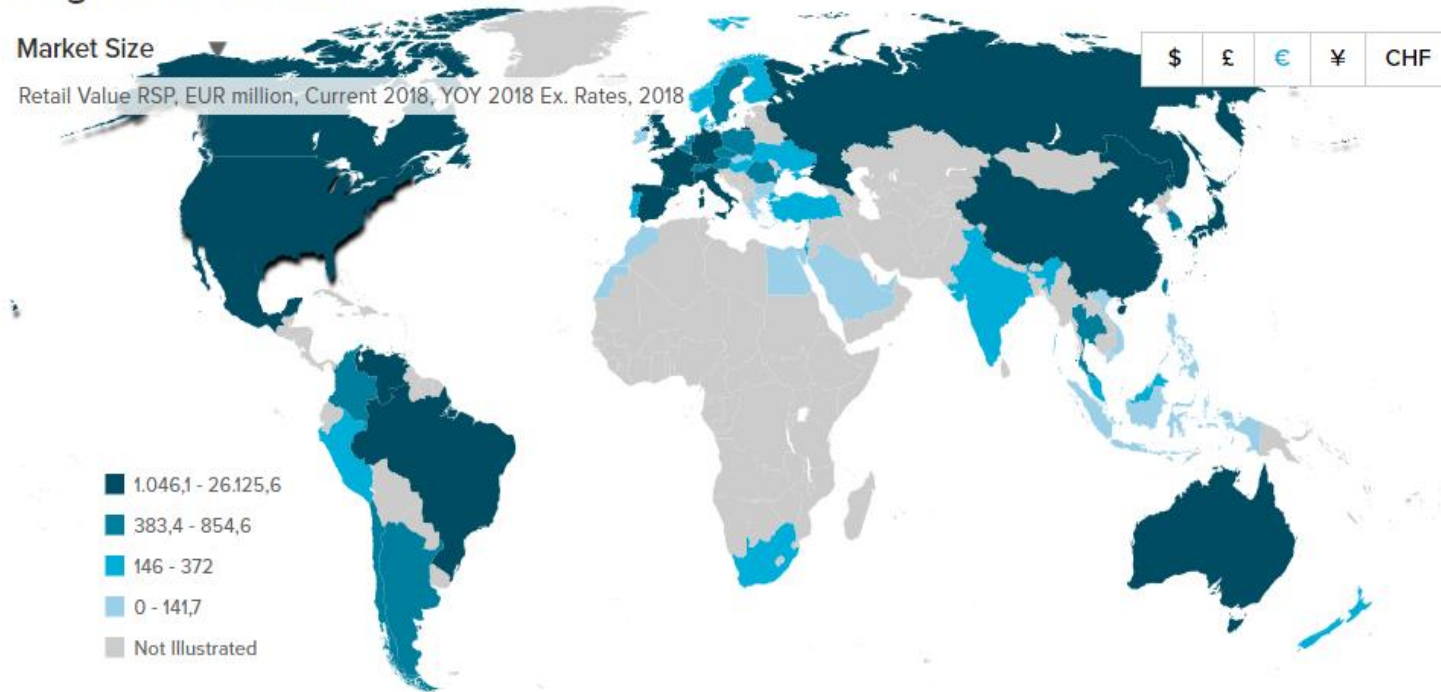


Global Pet food Market

Dog and Cat Food

Market Size

Retail Value RSP, EUR million, Current 2018, YOY 2018 Ex. Rates, 2018



Global Figure

2018, EUR million

71.860,9

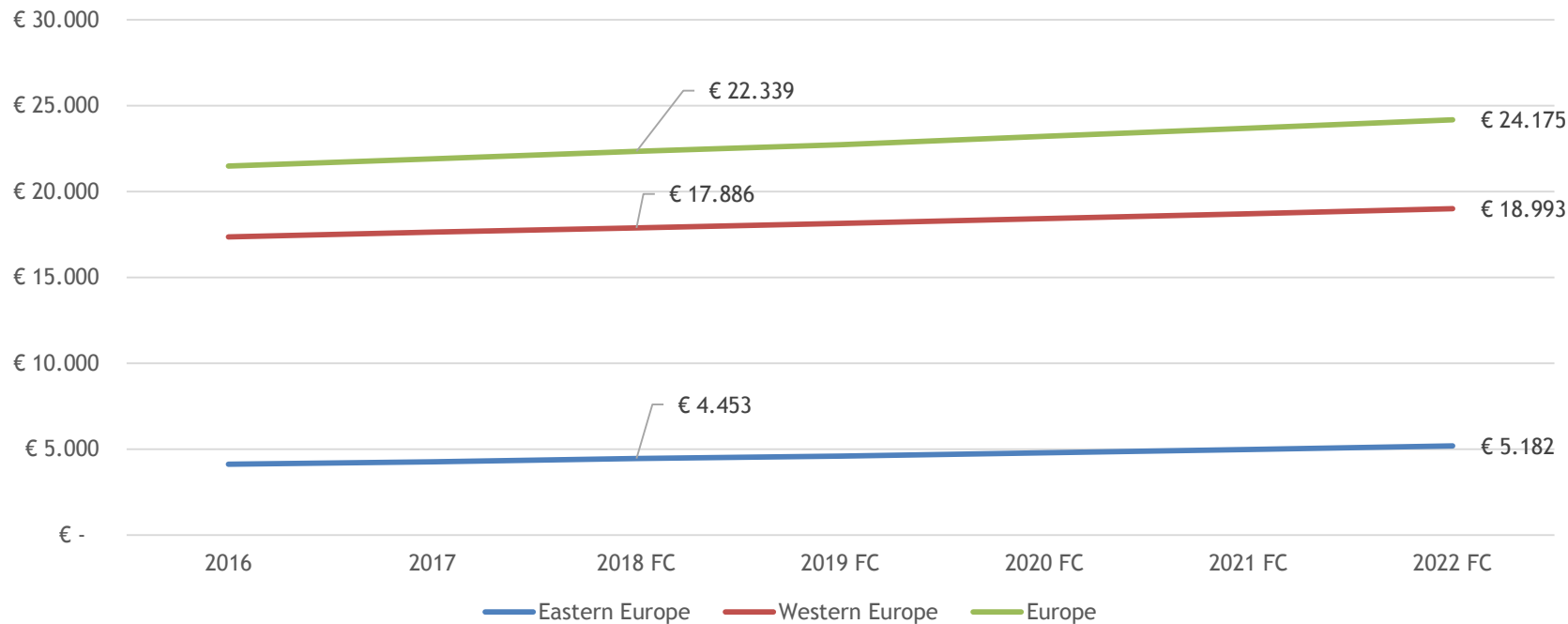
Regional Comparison

2018, EUR million

Asia Pacific	7.582,7
Australasia	2.245,9
Eastern Europe	4.970,3
Latin America	10.983,9
Middle East and Africa	693,5
North America	27.549,1
Western Europe	17.835,6

Source: Euromonitor

European* pet food market (x million)

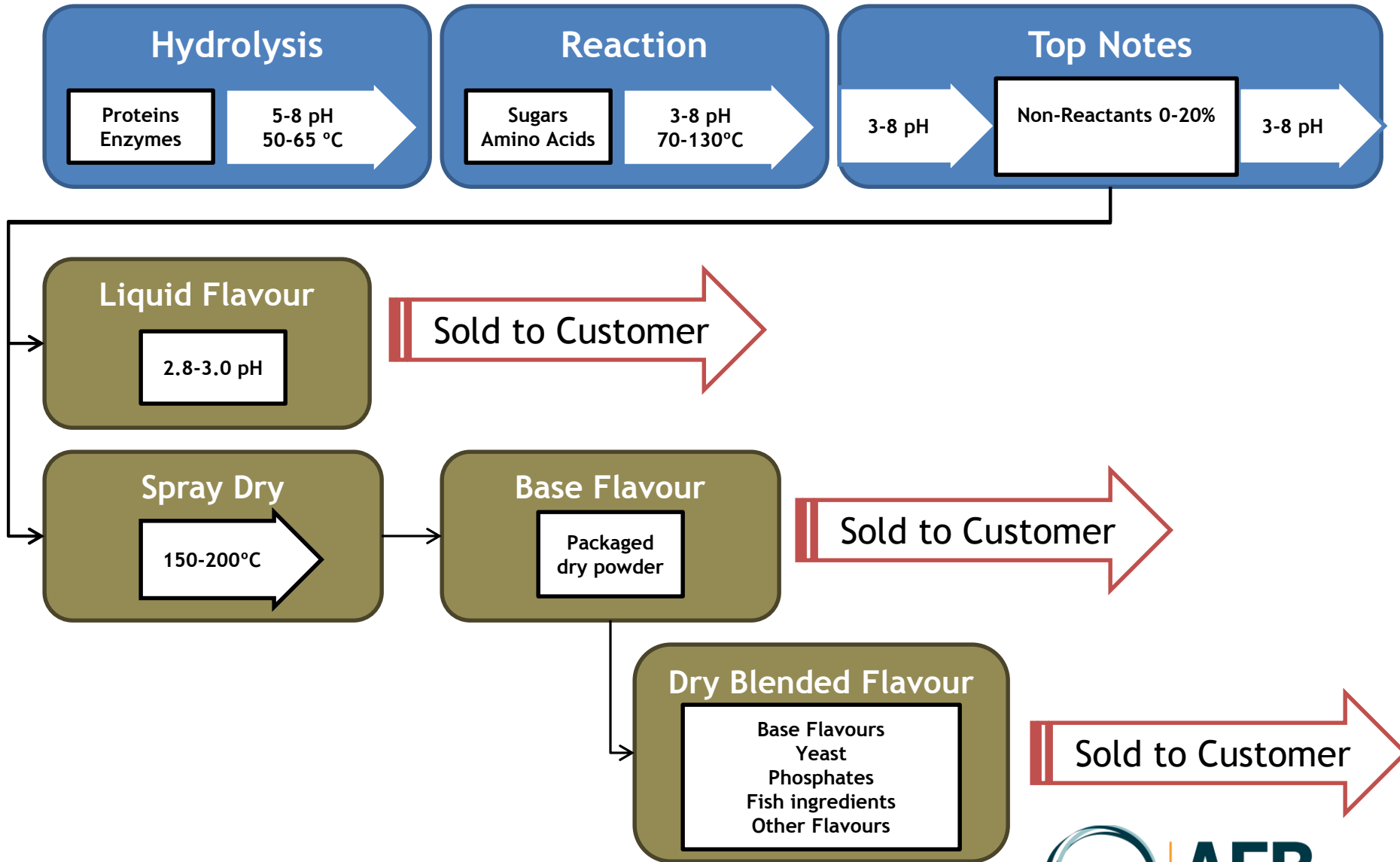


*(EE) Albania (modelled), Belarus (modelled), Bosnia-Herzegovina (modelled), Bulgaria, Croatia (modelled), Czech Republic, Estonia (modelled), Georgia (modelled), Hungary, Kosovo (modelled), Latvia (modelled), Lithuania (modelled), Macedonia (modelled), Moldova (modelled), Montenegro (modelled), Poland, Romania, Russia, Serbia (modelled), Slovakia, Slovenia (modelled), Ukraine. (WE) Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Gibraltar, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

Product & Application



AFB Designs and Manufacturers Palatability Enhancers



AFB Products and Application

Liquid Palatants



Liquid palatants are moderately viscous, low pH materials that are applied topically at 1 to 4% on kibble and treats.



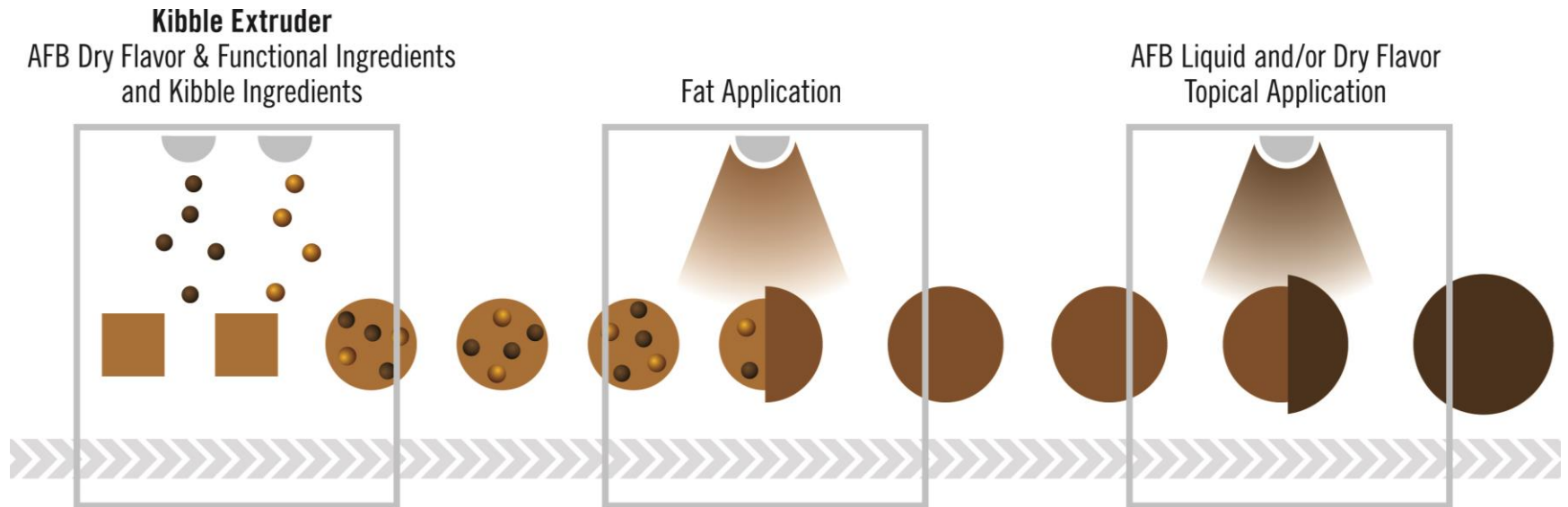
Dry Palatants



Dry palatants are flowable, low-moisture powders typically applied at 0.5 - 3% topically or inside the kibble.



AFB liquid and dry palatant solutions can be included inside or applied topically on the treat or kibble



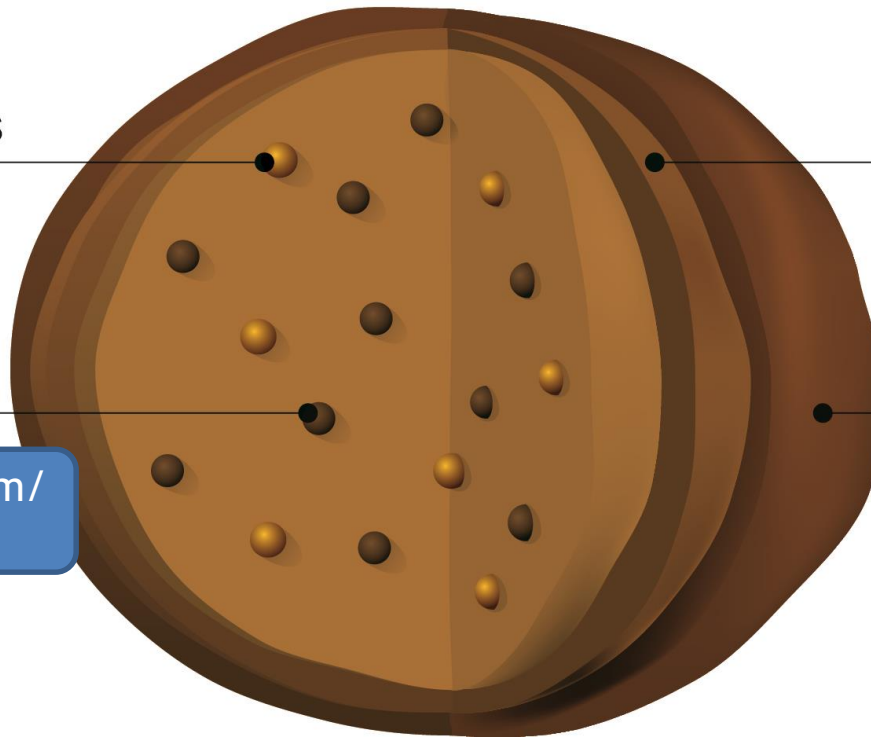
AFB palatant solutions can be used inside the kibble or topically

Internal Application

AFB Dry Flavor & Functional Ingredients

Kibble Ingredients

Fish → nutrition/claim/
palatability



Topical Application

Fish oil → nutrition /
claim

Fat Application

AFB Flavor
Liquid and/or Dry

Fish → palatability

Requirements Fish Based Ingredients



Legislation

EU 32/2002 Undesirable substances in animal feed:

- Heavy metals
- Toxins
- Dioxins

EU 1069/2009 Animal by-products and derived products not intended for human consumption:

- EU 68/2013 Catalog of Feed Material
- EU 1831/2003 Additives for use in animal nutrition

Additives used approved according EU 1831/2003.

- EFSA approval for cats and dogs

Most common are the antioxidants:

- BHA for dog products on final product max 150 ppm
- BHA for cat products it is under review, studies need to be done.
- Ethoxyquin can not be used for pet food application
- BHT like BHA but can not be used based on customer needs
- Tocopherol is approved, Rosemary is under review.

Trend (opportunity) in pet food is NATURAL which means natural antioxidants are preferred.

EU 142/2011

Treatment to guarantee:

- *Clostridium perfringens* absent in 1 g of the products
- *Salmonella*: absence in 25g: n=5, c=0, m=0, M=0
- Enterobacteriaceae: n=5, c=2; m=10; M=300 in 1 g

Ingredients for pet food palatants

- *Salmonella*: absent in 25 g → finished product in 375 g
- Enterobacteriaceae: <10 cfu/g
- Yeast & moulds <500 cfu/g
- Total plate count <25.000 cfu/g



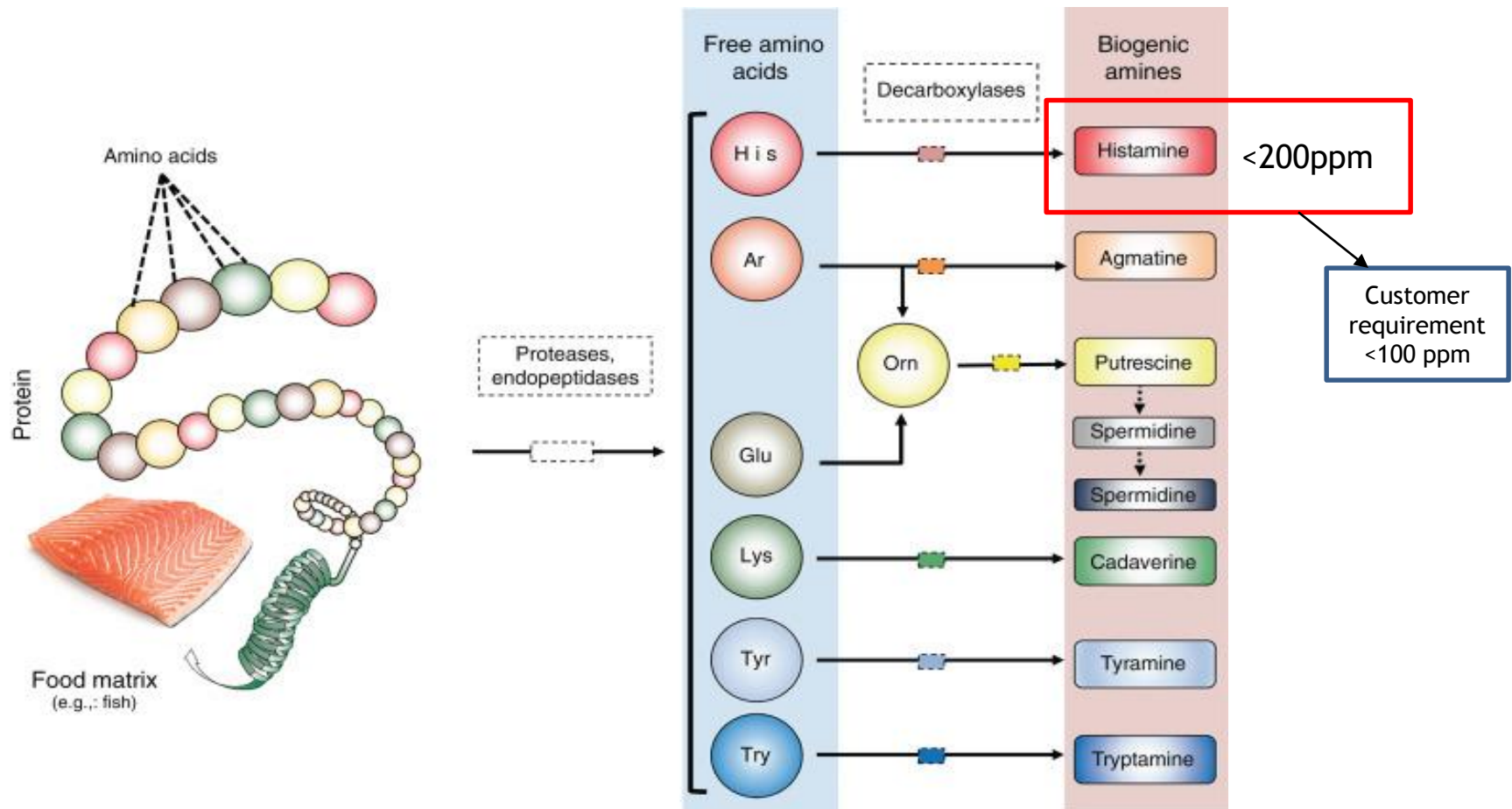
Production, way of working

Audit observations in fishmeal/hydrolysate factories:

- Hygiene in the factory.
- Installation not designed / constructed according to hygiene standards.
- Not demonstrable that antioxidant is sufficiently homogeneously blended in the product.
- Validation temperature step insufficient.
- Analysis on microbiological parameters limited and not frequent enough.
- CIP not sufficient.

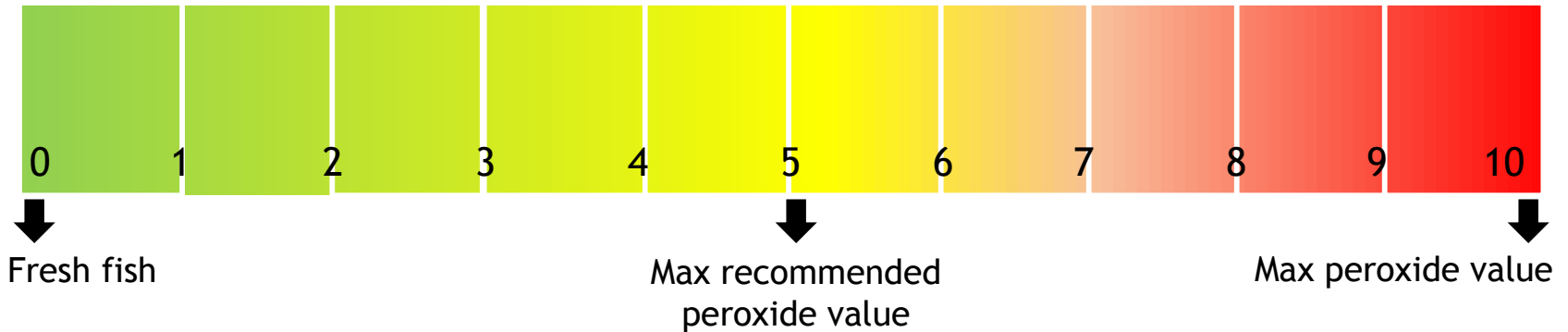
→ Good Manufacturing Practices

Freshness - Biogenic Amines



Source: César A. Lázaro de la Torre, Carlos A. Conte-Junior; Chapter 6 - Detection of Biogenic Amines: Quality and Toxicity Indicators in Food of Animal Origin; In Handbook of Food Bioengineering, Food Control and Biosecurity, 2018

Freshness - Peroxide Value



Relationship between peroxide value and cat food palatability *Effect of treating ingredients with BHA & BHT prior to inclusion in a cat food*

Time	Antioxidant treatment	Peroxide Value (meq/kg fat)	Intake Ratio
Initial	BHA + BHT	4.7	1.9
Initial	Untreated	7.3	1
3 months 35 °C	BHA + BHT	7.7	3.6
3 months 35 °C	Untreated	19.0	1

Food was coated with 4% tallow treated with antioxidant



Australia

- For salmonid fin fish (fish in the family Salmonidae) derived material - 100° C for at least 30 minutes or equivalent
- For non-salmonid fin fish derived material - 80° C for 20 minutes or 85° C for 15 minutes.

→ Some countries: Heat treatment fish ingredient >90°C



- No fish filet or body fish at all, but only fish byproducts-trimmings are allowed.
- Fish used to be known and well identified →
 - What species
 - Part of the fish
 - Fishing zone (wild catch)

Conclusion and Future work



Conclusion

For pet food (palatants) a higher demand for certain quality → more investments needed to reach the requirements.

Value of fishmeal/hydrolysate could be increased by fulfill needs for use in pet food palatants.

From commodity to added value products

Research questions

What research is needed to increase quality of the products?

Thank you

