Creating Legacy and Value in Sustainable Food Loss Management

Trends and Opportunity Analysis for Agrosingularity

Barcelona, 16th of June 2020

The project was conducted with Agrosingularity and ESADE, combining company and university needs
Executive Summary

Background & Team

This project work is part of the final deliverable for the ESADE MSc class "Leading towards Sustainable Futures". The team is a diverse mix of different study backgrounds and nationalities. The project combines a trend and opportunity analysis for Agrosingularity, while also using class concepts of storytelling, reflection, learning and legacy. The time-frame was one month.

Food Loss Management

Food waste and loss is one of the biggest problems of our times, and there is inefficiencies all across the value chain. Produce is often discarded directly after harvesting, due to misuse or bad storage. The team identified information gaps as the core issue, since both consumers and companies are starting to change their mindsets, but lack knowledge on how to combat this issue.

Clean Label Trends

Clean label, while not having a clear definition, is gaining increasing importance on the food we consume. End-consumers are changing their views and have less tolerance for artificial ingredients. They want transparency and new experiences, while also not making any compromises in taste or mouthfeel. It is up to the companies to create new innovative products based on natural ingredients only.

Early Adopter Analysis

Different industries were analyzed and mapped according to budgets and relevance for Agrosingularity's products. Bakeries, processed foods, baby foods and pet foods are one the forefront, followed by juiceries and sports nutrition makers. For some industries (aligned with the company) we conducted an in-depth analysis on trends, use cases and early adopters regarding products, companies or geographies.

Value Proposition

The most relevant values in the food industry are natural and sustainable. Agrosingularity needs to communicate its message and value proposition both to the companies and the end-consumer. Many still think that the quality of products made from waste is inferior, so it is important to point out that the opposite is the case and that imperfect food is actually more nutritious.

Agenda
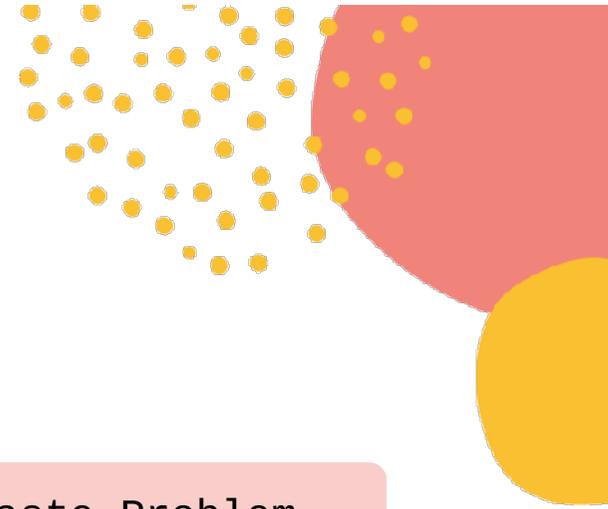
We are a diverse team of ESADE MSc students looking to create sustainable impact on a real challenge

The Team

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Ann

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Hanaco VC

WASTE

- 1/3 of all food produced is wasted; this is equal to 70kg of food wasted per year – the weight of an average person
- Food Waste is set to increase by 33 percent within 10 years
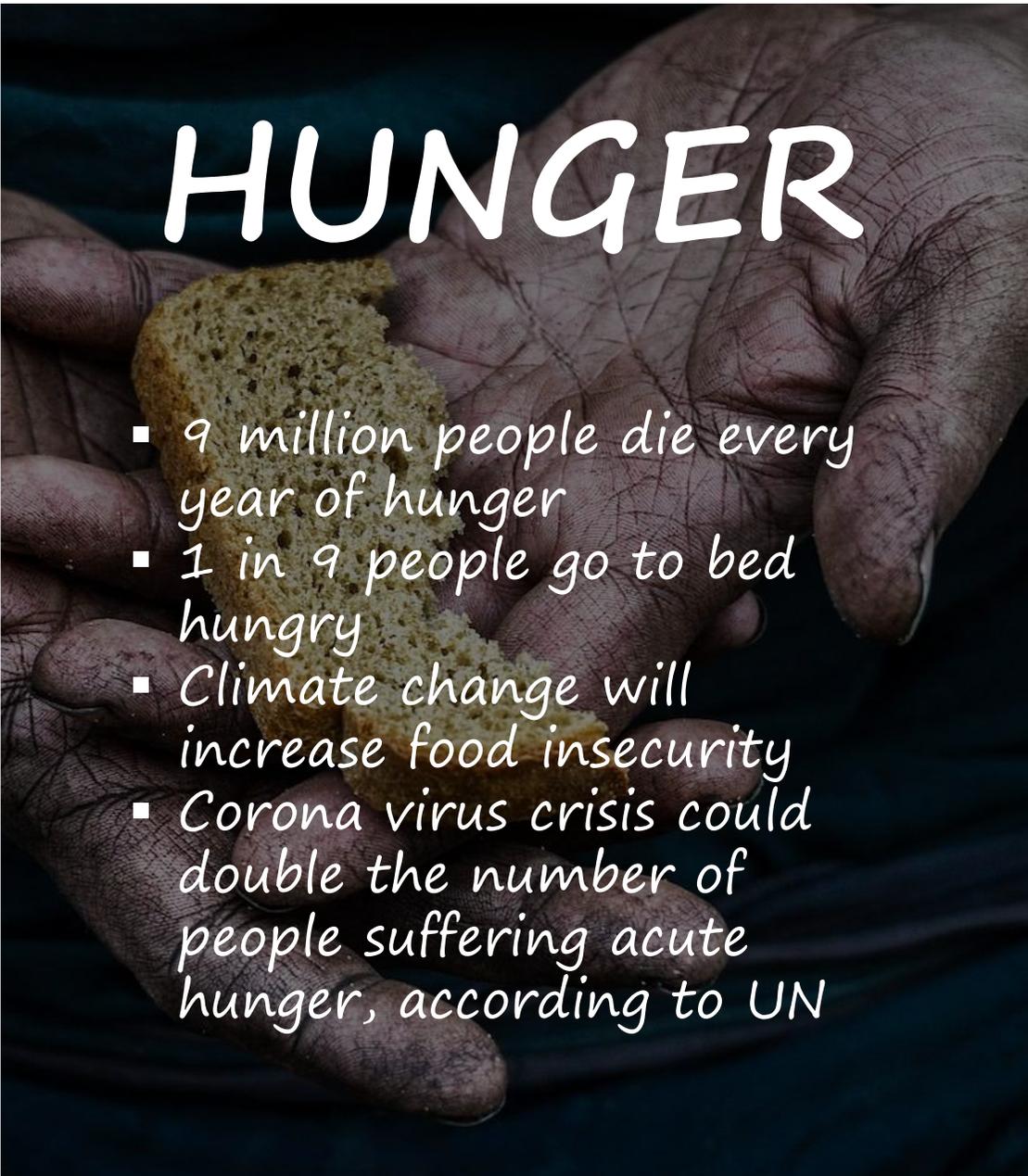
HUNGER

- 9 million people die every year of hunger
- 1 in 9 people go to bed hungry
- Climate change will increase food insecurity
- Corona virus crisis could double the number of people suffering acute hunger, according to UN
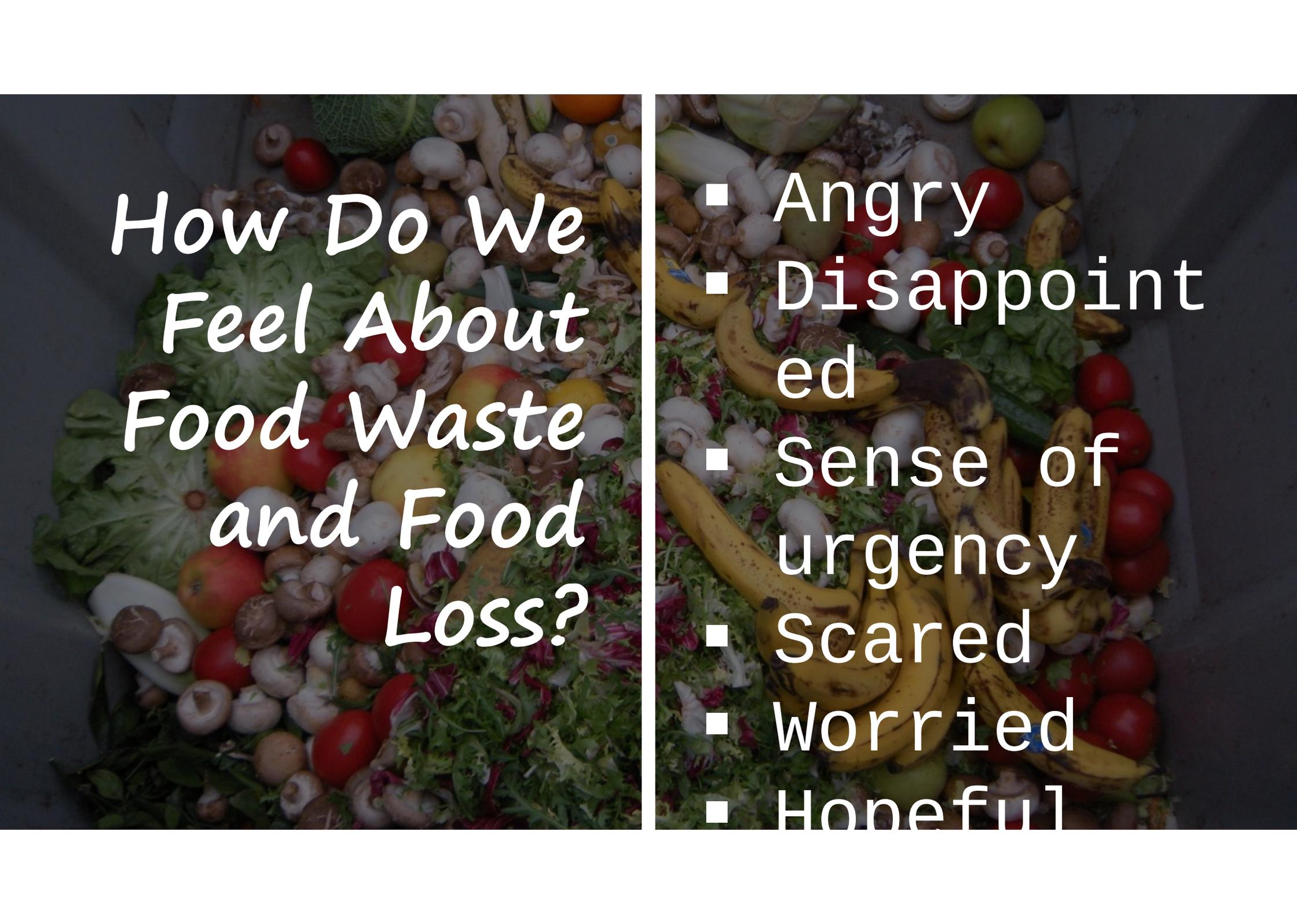
The amount of food waste is alarming at all stages of the food production process

The Analogy of Tristram Stuart

9 Slices of Bread
Imagine those slides of bread represents the world's food supply

1 Slice is Lost on the Farm
Because of poor handling, lack of sufficient storage, etc

3 Slices are Fed to Animals
To produce meat, eggs and cheese

Only 1 Slice is Replaced
Unfortunately, animals are very inefficient in producing protein, they replace only one slide of bread. Hence, the other two slices become waste

2 Slices End up in the Garbage
For various reasons (spoilage, sell-to-date confusion, imperfect appearance)

Only 4 Slices left to Consume
What a waste this is!

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Large information gaps are the fundamental cause of unnecessary food waste and loss

Root Causes

Consumers

I want sustainable products!

- With the *development* of our society we have turned our favor back towards *locally sourced and natural foods*
- We have become more *aware* of the consequences of our *wasteful habits*, as the internet made worldwide hunger more transparent and growing population made the resources ever more scarce
- General media mentions of Food Waste grew x3 in 10 years[1]

Why is there still food loss?

The root cause is the huge information gap across the value chain
- Don't know how to collect food wastes
- Don't know where to dispose
- Don't know where to source recycled goods

Companies

I want sustainable growth!
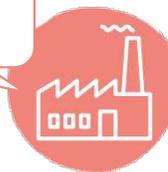
- Companies are searching for ways to *optimise costs and use of resources* through *re-use* of products and *upcycle* of leftovers
- To attract new customers, executives search for product differentiators in *healthy ingredients*
- A part of companies sees it as their *responsibility to act* now

We decided to work with a real company to help them with an existing problem

Project Process

1. Understand the Problem
2. Narrow the Scope
3. Scout Companies
4. Interview Experts
5. Deliver Results

Agrosingularity is a company fighting food loss and looking for early adopters
Introduction of Agrosingularity

978,9 tn
GHG REDUCED

18,41 tn
INGREDIENTS

233,1 tn
SAVED FOOD

What does AS do?

- Agrosingularity buys **excess foods** from farms and grocery stores. They are processed into **dry powders** for organic ingredients, which are upsold for clean label food producers, **as colorizers, texturizers** etc.
- This is revelant because around 1/3 of food waste is industrial/ commercially sourced
- 8.7% of the companies linked essive losses to product defects[1].

What is the information gap challenge for Agrosingularity?
Finding suitable customers and applications for the AS products

Sources: 1) https://www.foodbev.com/news/tackling-the-problem-of-food-waste-in-manufacturing/, https://www.wrap.org.uk/content/food-waste-commercial-and-industrial-sources

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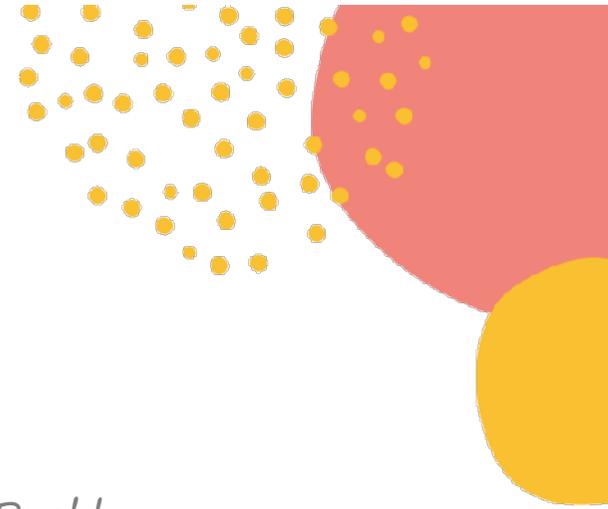
There is no fixed definition of 'Clean Label' but the use of the term has been gaining important significance

What is a Clean Label?

Development of Definition

- Term itself appeared for the first time in 1980 when consumers started to avoid E-numbers
- Use of term exploded 10 years ago as well as new clean label product launches
- One of leading food journals cited the term "clean label" twice in 2000, 18 times in 2011 and 77 times in 2016 in their articles indicating growing importance (Asioli et al., 2017)
- However, clean label does not have a legal/ commonly accepted definition – specific regulations/ legislations do not exist

Interpretation of Definition

- Several definitions/ interpretations are provided by market trend reports
- Not based on scientific research but largely based on consumer perceptions
- For manufacturers using a clean label positioning means using ingredients that are supported and accepted by consumer; make the ingredient list short, simple and not include artificial/chemical names or E-numbers.

Definition: Products that can be positioned as 'natural', 'organic' and/or 'free' from additives/preservatives
(The Clean Label Guide to Europe, 2014)

Sources: The Clean Label Guide to Europe (Ingredion Consumer Research, 2014); Asioli, D., Aschemann-Witzel, J., Caputo, V., Vecchio, R., Annunziata, A., Næs, T., & Varela, P. (2017). Making sense of the "clean label" trends: A review of consumer food choice behavior and discussion of industry implications. Food Research International, 99, 58-71.

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Clean Labels bring back the lack of trust between food manufacturers and consumers

Consumer Perception

Consumer Movement

Consumers perceive a distance and knowledge gap between people and food manufacturers

Basic driver of clean label trend is consumers' increasing desire to avoid certain ingredients and seek 'naturalness'

Consumers equate clean packaging with clean foods – sustainable, minimal, functional.

Clean labels bridge the knowledge gap between food manufacturers and consumers

Perception of Ingredients

Consumers have different perceptions on the use of different ingredients. Important distinction appears to be the specific function of the ingredient of that product.

Providing Flavor	✓
Protein	✓
Unfamiliar Ingredients	✗
Sugar/ Syrups	✗
Processed, Artificial, Chemical ingredients	✗

Sources: Aschemann-Witzel, J., Varela, P., & Peschel, A. O. (2019). Consumers' categorization of food ingredients: Do consumers perceive them as 'clean label' producers expect? An exploration with projective mapping. Food quality and preference, 71, 117-128.

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Clean Label adopters are diverse and regional attitudes can have significant effects, no universal standards

Overview Global and Europe

Global Movement

Clean label is steadily growing in all regions and adoptions of clean label by influential countries is accelerating growth in other regions. Nevertheless differences can be observed (State Of Clean Labels Around the World, 2017).

Europe
- Demanding clean dairy
- Highest environmental concerns

North America
- Demanding clean (frozen) meat
- Highest environmental concerns

Latin America
- Popular for juices and fruit beverages, snacks, meat, dressings & sauces, and dairy

AP & EMEA
- Demanding clean dairy, clean label snacks, instant formula and meat

View on Europe

Ingredient List

Consumers in every country believe that the ingredient list of their food is important but there are varying degrees of concern with Italy & France considering it most important. And the Netherlands the least.

Food Packaging

Packaging is most important for consumers in Spain and the least important for the Netherlands.

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Following from our analysis, we developed some hands-on recommendations for positioning Clean Labels B2C

Recommendations

1 Remove words from ingredient list that are not well understood by consumers

2 Add words to make an ingredient's name which positions the ingredient more positively (f.e. 'pea protein' to 'hydrosylate')

3 Specify ingredients as a known plant-based ingredient that consumers are likely to categorize and perceive as known and natural

4 Communicate more with consumers about unknown ingredients that are in fact natural

5 Ingredients should indicate a consumer-oriented benefit

Agenda
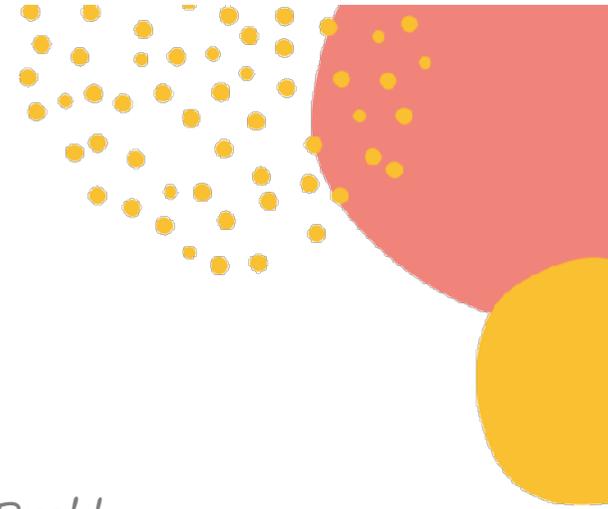
New pillars define consumer behavior, AS needs to address priorities to them through their B2B clients

Changing Consumer Perceptions

"Specifically for me"

Functional Ingredients

- Low calorie
- Allergen-Free
- Added Proteins, Vitamins, Fiber
- Diet Sensitivity
- Gluten-Free
- Plant-based
- Added Benefits (e.g. energy, weight, stress)

"Good for all"

Sustainability

- Organic
- Local
- Safe/ Food Safety
- Unprocessed
- Minimally processed
- Grass-fed

"Real and recognizable ingredients"

Acceptable Ingredients

- Made with Real Ingredients
- Natural
- Nothing Artificial (Flavors, colors, preservatives)
- No Additives
- GMO-Free
- Quality

"Food must taste good"

Taste

- Acceptable Taste
- Healthy, but Delicious
- Flavorful
- Adventurous

"Inherently healthy"

Nutrition

- Homemade
- Fresh
- Wholesome
- Vegetables, Fruits, Nuts
- Low Sugar
- Low Sodium
- Low Cholesterol
- Zero TransFat
- Good Fats vs. Low Fat, Fat Free

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Food producers need to adapt to new consumer behavior but also their responsibility for sustainability

Consumers vs. Companies

CONSUMERS WANT

1) Current products to be more natural
2) New products, which satisfy their need for healthy food
3) No compromises

How can this be solved without compromise?

COMPANIES SHOULD

1) Create new products with the same or better quality but natural
2) Go beyond labelling but communicate it as the new normal

This is not just CSR, it's more sustainable on all aspects!

Initiatives and use cases for Agrosingularity's products vary highly across industries and markets

How are industries dealing?

Investments

Future Potentials
Leaders

high

◆ Cosmetics

◆ Bakeries
◆ Processed Foods
◆ Baby Foods
◆ Pet Foods

Laggards
Starters

◆ Beverages

◆ Candy & Confectionary

◆ Sports Nutrition

low

low
high
Demand
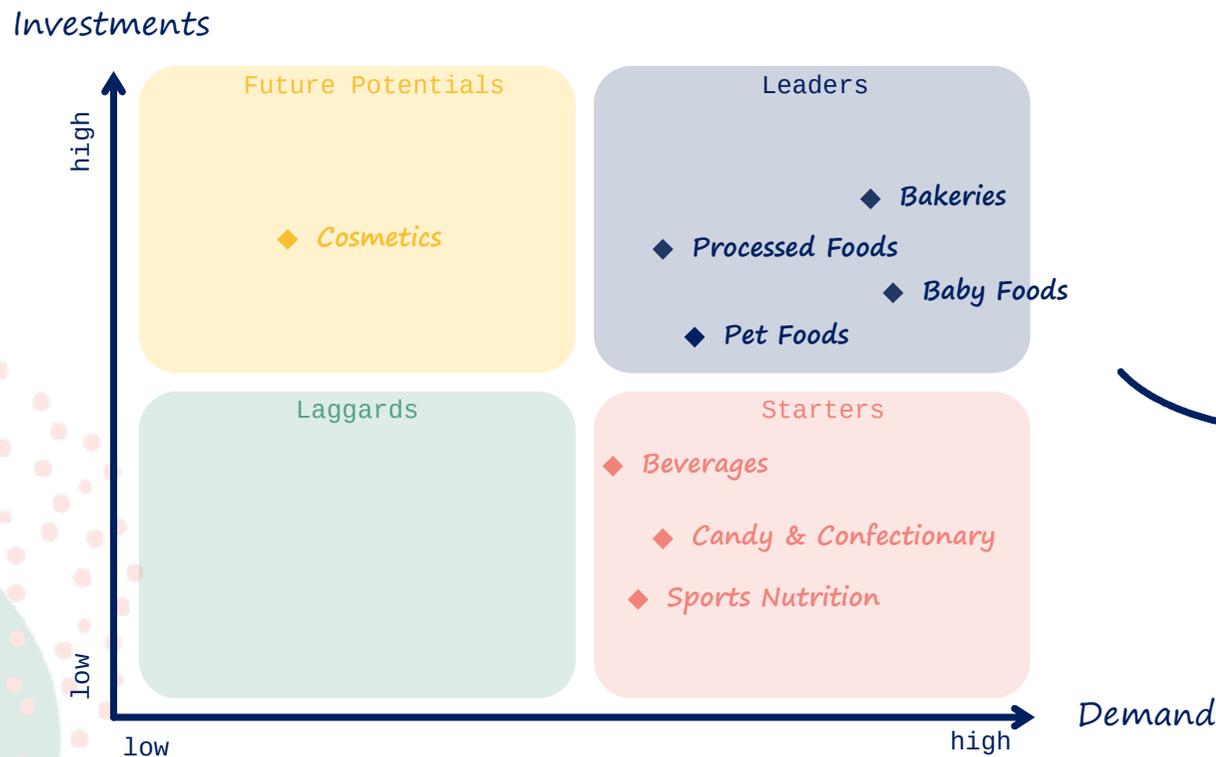
Explanation

This matrix visualizes the industries positioning measured after level of investments in sustainable and clean initiatives, and the level of demand for Agrosingularity's products. We recommend to target the Leaders quadrant to establish well-funded, impactful initiatives with big players.

Bakeries see a rise in demand for artisanal, clean and basic products from companies and consumers
Analysis on Bakeries

Most Important Bakery Trends

% of Respondents, Netherlands, 2017[1]

31% Healthy, Fair, Sustainable

17% Basic, artisanal

14% Local

9% Fresh

7% E-number free

According to a Dutch survey among bakery professionals, healthy trends in the industry were mentioned the most by far. Consumers seek natural and local products again, that are fairly and sustainably produced. E-number free were specifically mentioned by 7% of the respondents as well.

Use Cases for Clean Label

Bakeries are among industries with the highest demand for natural ingredients. Studies prove how e.g. hard red spring (HRS) wheat can be used as a better bakery improver or soy flour can be used as a carrier and crumb softener.

Dough Conditioner

Dough Strengthener

Natural Beta-Carotine & Vanilla

Crumb softeners

Early Adopters in the Industry

- Germany is the leading bakery market in Europe (3% annual growth), closely followed by the UK
- Cerealto Siro is the largest producer in Spain, they re-invest revenues of 20mEUR in product innovation and clean ingredients
- Bimbo is working with initiatives like Naked Innovation on their circularity plan

Processed Foods companies need to change customers' perception by introducing natural alternatives to artificial additives

Analysis on Processed Foods

Change for Processed Foods

Processed Food companies have been suffering from a bad reputation in the eye of the consumer in the past year. Artificial flavors, preservatives and colorings are perceived as health-damaging, and buyers increasingly seek ingredients, that they know and understand. For Agrosingularity, multiple trends and movements are beneficial in the processed foods industry.

1 Demand for plant-based food is rising

2 Europe is by far the leading market for processed foods

3 Artificial flavors and colorings are negatively perceived on the same level as antibiotics, hormones or GMOs by consumers[1]

4 Consumers want transparency and increasingly read the back of packages

5 Consumers start holding big producers accountable for their actions

Use Cases for Clean Label

Potato starches and malt are the most important ingredients for processed food companies. Malt adds texture and mouthfulness to the food. Fibers and colors for cereals are in demand.

Freeze stability

Thickening agents

Processing stabilizers

Fiber, Flavor, Color

Early Adopters in the Industry

- Danone has been a leader among the big food processing companies to put focus on clean and nutritious products, especially with focus on vulnerable groups like children
- PepsiCo wants to drive shared value for the society, has potential to improve the ingredients of their products
- Both companies have offices in Spain
- Mars drives sustainability with their transparent cocoa initiative

Parents highly value natural ingredients for their children, baby food has high relevance as early adopter

Analysis on Baby Food

## Trends in the Baby Food industry

Baby foods are purchased by the parents solely based on their perception of the product on their kids' health. These are the five biggest factors parents are looking out for.

Ancient Grains | Single and even multigrain products are being perceived as less nutritious compared to ancient grains, e.g. quinoa, buckwheat, chia

Real Food Nutrition | Parents want transparency on the packaging labels and ingredients they can pronounce

Color Codes | Parents look out for food colors that correspond with specific nutrients and vitamins

Gut Health | Probiotics are especially important in the first months, the general belief is a lack of such due to our overexposure of antibiotics

Organic Products | Parents buy organic, non-GMO and chemical free products for their children

Use Cases for Clean Label

The baby food industry has the biggest demand for vegetable powders for its nutritious components. Food powders rich in amino-acids are used for nutrition and fortification.

Spinach powder for antioxidants

Beta-Carotine from Carrots

Early Adopters in the Industry

- North America and Europe are the in leading demand for powdered nutrition in baby food, account for 50% of the market[1]
- China is an interesting market, as consumers buy foreign baby food products
- The biggest challenge is to communicate to parents that food waste products have the same quality and nutrients, often perceived as inferior

Beverage companies struggle to adapt, juice and kombucha could be pioneer products in the industry
Analysis on Beverages

Trends in the Beverage Industry

Bottled water has just recently surpassed soft drinks as the number one highest selling beverage. Millennials and younger generations are putting higher focus on health, driving drink trends like kombucha, cold-brew coffee and kombucha. However, older generations have not yet adapted to this.

1 Increased focus on health and wellbeing, functional drinks

2 Premiumization and higher spending powers of consumers

3 Convenience through healthy ready-to-drink mixes

4 Direct to consumer offerings, fast delivery

5 Sustainability, especially with regards to plastic reduction

Use Cases for Clean Label

For Agrosingularity, all use cases are relevant where companies fruit and vegetable concentrate as main ingredient. This mainly affects juiceries. Softdrink producers are still very behind, a lag that has been affecting all types of junkfood.

Flavor enhancers

Color enhancers

Early Adopters in the Industry

- Since health is the most important factor for consumers, the organic factor could be interesting to point out
- Juice and smoothie producers are the most relevant customers for the natural powders
- Kombucha is an interesting niche product, since they target customers who are a lot more sustainably conscious
- Very low relevance and adoption in other beverages

Sports nutrition is starting to mass-appeal, beginning to adapt the trend for protein bars and hydrogel

Analysis on Sports Nutrition

Most Important Sports Nutrition Trends

- **Increasing mass-appeal for consumers:** Sports nutrition is starting to appeal to a growing population which see sports nutrition as a health booster, adding to the existing perception of performance improvement
- **Clean labels:** Companies need "speaking the same language" as their buyers to become more relevant for the mass. Most appealing labels communicate statements that consumers can relate to. For sports nutrition, it is "natural" and "no artificial additives".
- **Sustainability:** Sports nutrition companies are just starting to implement sustainability into their products, as their products become more mainstream and starts attracting an environmentally-conscious audience

The sports nutrition market is defined as including all the "products designed to improve physical endurance, increasing muscle growth/development/mass, or speed recovery after exercise". The global market value grows at ca. 10% p.a., with a current global value of 55,87 bUSD.

Use Cases for Clean Label

The sports nutrition needs products with high and nutritional properties, natural ingredients and pleasant flavours. Natural powders are mainly used to add flavour, colour and texture, but can also be used to provide additional health benefits.

Flavor	Color	Texture	Nutrients

Early Adopters in the Industry

- Most relevant could be small natural protein bar producers like Barbells and performance hydrogel producers
- Clean labels are not the highest priority for the big European market leaders, especially compared to the other analysed industries
- MyProtein is the market leader and focuses more on CSR
- In the Spanish market, Nutrisport and Paleobull show propension for sustainable practices and purposes

Agenda

Agrosingularity's value proposition is unique for end-consumers and businesses

Value Proposition Canvas

Value Proposition

Product & Services

- Natural and sustainable powder ingredients

Gain Creators

- Natural and sustainable ingredients
- Product development with experts
- Texture, colour, flavour, nutrients

Pain Relievers

- Natural alternative for artificial ingredients
- Struggle to have a clean label

Customer Profile

Gains

- More natural ingredients
- Clean labels
- Sales increase/market share
- Sustainable practices
- Better image

Customer Jobs

- Product innovation
- Development of new products
- Marketing campaigns

Pains

- Increasing competition
- Difficult to substitute current ingredients with natural alternatives
- Higher cost and shorter lifecycles

Agrosingularity can convey their value proposition to customers through effective storytelling
Storytelling

"The world we live in is changing. Food loss is one of the most disturbing developments in the present time. To pass on a healthy environment that we want our children to live in, change needs to happen now. Agrosingularity combats food loss by turning excess vegetables into nutritional, healthy and long-lasting powders. At the same time, consumers are aware of these developments and want to take care of their health and live more sustainably. We provide the products you need to turn your food into more natural and sustainable options. The recipe for sustainability is made of simple and natural ingredients – We will work closely with you to analyse the potential improvements of your products and processes and develop the best solution to fit your individual needs.

What is the benefit for your consumers? Both their needs for more natural and sustainable products are fulfilled. Often today, many consumers' mindsets towards food waste or food loss products are negative. They think the products have less nutrients, just because they are "ugly". However, the opposite is true. We get rid of so much perfectly imperfect produce, and the vegetables and fruits we see in supermarkets are actually full with pesticides and chemicals just to make them look "pretty" – but are they really? We want to make use of produce that is ending up in landfills right now. Lets take this first step together and contribute to a more sustainable world with less food waste."

Agenda

We were agile and drove real impact, however getting started on the project was difficult
Reflections

What went well?

1) Real company, real impact
2) Learnings on food loss for ourselves
3) Agile methods
4) Quick adaptation
5) Many, but short alignments
6) Using class concepts to bring value

What can we improve?

1) Difficult to get started
2) Created dependency
3) Time management despite task splits
4) Interview earlier

We were agile and drove real impact, however getting started on the project was difficult
Key Learnings

1 Consult different experts, they know more than you will ever find through desk research

2 Make use of tools like Miro, Trello, Teams etc., very useful especially in these times

3 Stay calm and be ready to change your approach again when you realize that you are getting stuck

4 Narrow your scope, you can't cover everything and it's better to go in depth

We want products from food waste to become the new standard that does not need to be labeled

Impact and Legacy

Self

Us

Now
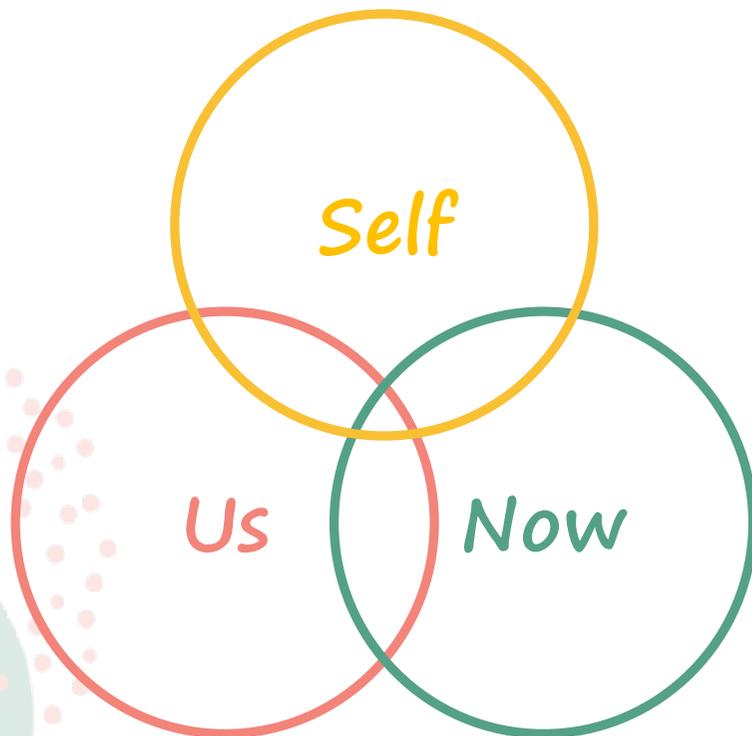
Our message to you is that becoming sustainable is not about radical changes. Rather, it is our small, incremental choices we do every day.
Create a vision for yourself about the world you want to live in.
Check your labels, shop locally and natural and support sustainable initiatives by companies.

Change is driven through each of us.

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Thank you!
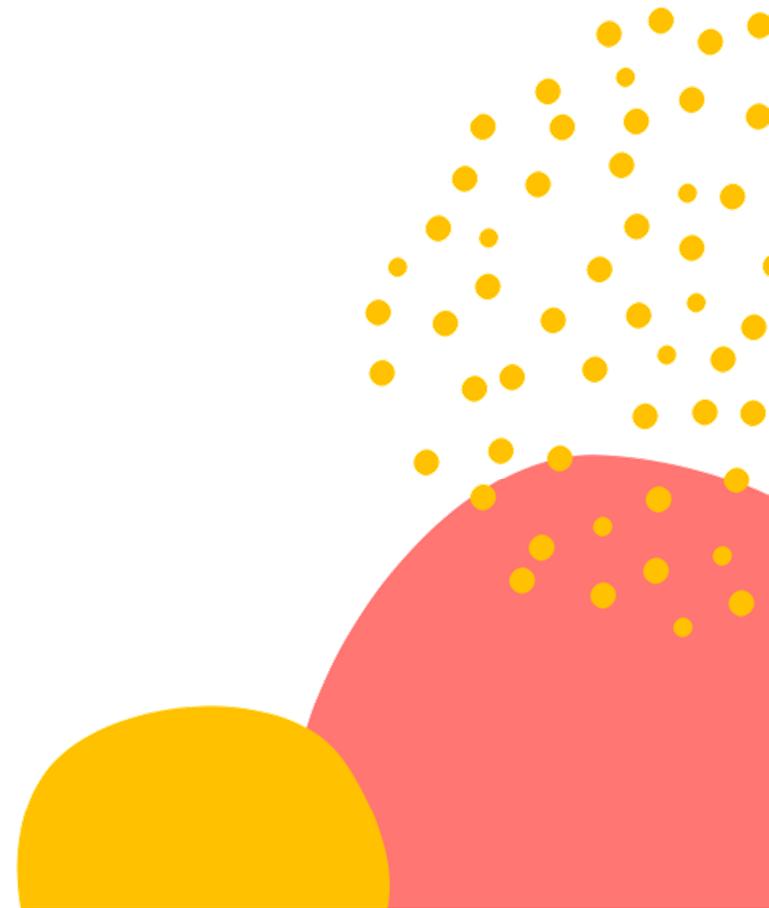
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