



STRATEGIES AND OPPORTUNITIES FOR FOODBANKS TO ENGAGE IN FOOD PROCESSING INITIATIVES

14/12/2022 Etienne Rubens







OUR MISSION

Fight food poverty assure food security for people in need

2. Fight food waste

OPERATIONAL FLOW FOOD BANKS + KEY-FIGURES





2021

REASONS TO ENGAGE IN PROCESSING

1) Increase our supply & distribution **volume**;

- Demand increases in 2022 by +15% (after survey)
- <> Supply remains stable and will decrease

2) Increase **quality**/nutritional value of our distributed food to people in need

• Appel & pear juices from FOX are very healthy

3) Supply sources in constant evolution \rightarrow need to look for innovation & opportunities

• Eg. 2022-inflation > decrease from industry

VHENEN

- Fruit&veg^o: Flemish monitor: 10% of vomume taken out of market goes to food aid/banks.
- Inspiration via European Federation of Food banks
 - Eg. case of Foodbank Spain for orange processing

OUR ROLE IN ZEROW-PROJECT

- Evaluate if the new developed mobile unit can be installed and tested in a Food bank.
 - If not, give recommandations on other possibilities and partners
- Evaluatue feasibility of processing for donation, on every level
 - Economically/business/financial
 - Legislative

SAME

VNENEN

• Practical/logistical ...

→ meeting 13/12/2022 with Flemish dep.Agriculture + ILVO confirms possibilities/opportunities for Food banks

FOOD BANK LIMBURG - LOCATION







Extra unit to rent in fall 2023 for storing FOXcontainer?



FOOD BANK LIMBURG - LOCATION







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BEDANKT VOOR UW AANDACHT







Food Tech Brainport Without waste, healthy food for everyone

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Without waste, healthy food for everyone

With our **network** of technology providers, food processing companies and knowledge and research institutions, we work on a **future proof food industry**. We connect the food processing industry to innovative technologies, talent, research and funding.

Our focus areas are:









Food processing facility



Easy accessible practical location for testing and (technically and economical) validation of processing plant based streams to semi finished products and ingredients.

- physical location for testing and production
- 🙋 scaling-up possibilities
- temporary or permanent production locations
- showroom for innovative technologies



Innovative technologies

Mild conservation, mild separation, smart food processing

- 🗖 HPP High Pressure Processing
- 🗖 RMF Radio Magnetic Freezing
- PEF Pulsed Electric Fields
- Membrane technology
- ATFD Agitated Thin Film Dryer
- Vegtable processing for juices, concentrates, pulp
- Fermentation
- 🙋 RF heating (soon on site)
- Many more in our network



Projects and clusters

We are building collaborations, clusters, consortia on regional, national, and international level

Food from Food

Valorization of plant based streams towards new

ingredients

🙋 Bell pepper cluster

Innovative food products from peppers

🤌 Cotemaco

Efficient production process by implementing cobots and smart sensors





RESTSTROOM

INGREDIËNT

7.000 TONS IS WASTED EACH YEAR

Food Tech Brainport is investigating opportunities to use the 'lost' peppers and their nutrients in foods or food ingredients. This study pays special attention to carotenoids, fiber, and the "spicy" substances in peppers.

Partnercase PeelPioneers

"Food Tech Brainport helped us with the valorization of orange peels. Thanks to their financial support through the Food from Food project we were able to start extracting valuable ingredients. As a result, millions of kilos of peel are now being converted into valuable raw materials".



Partnercase Beefy Green

Beefy Green came to Food Tech Brainport via the Food from Food project. All Beefy Green activities, from testing to production and sales, now take place at the Food Tech Brainport location. Thanks to the direct lines to the technology and ingredient suppliers, the process is efficient.





Food in Noord-Brabant

NUMBER OF JOBS IN AGRIFOOD BY REGION AND SUBSECTOR















Mini

APPel en verber nix

Worteler



Food in Noord-Brabant

BUSINESSES AND JOBS IN BRABANT AND THE NETHERLANDS IN THE AGRIFOOD PRIORITY INDUSTRY, 2018

| AgriFood | Number of businesses | Number of jobs | |
|-----------------|----------------------|----------------|--|
| Brabant | 13,912 | 81,160 | |
| The Netherlands | 88,470 | 468,700 | |
| share | 15.7% | 17.3% | |

NUMBER OF BUSINESSES BY SIZE PER SUBSECTOR, 2018



EMPLOYMENT FIGURES, 2014-2018, BRABANT AND THE NETHERLANDS



Experiences from food processors

Difficult to get support for further development of higher TRL levels (technology readiness levels)

Valley of death



Experiences from food processors

It is easier to ask for 1 million funding then for 10.000 euros

For SME it is difficult to get funding for (sustainable) innovation



Experiences from food processors

Cooperation throughout the chain and crossover with other sectors is essential to tackle current challenges

Working together with partners you don't know is difficult



Just some challenges: digitization – short of staff – plant based – biobased – insecurity supply – sustainability – complex consumers

Experiences from food processors

Fragmentation of initiatives and organizations that have similar goals but different topics/focus

How to find the right place?





Use for human food (e.g. food banks)

Conversion to human food (processing and reprocessing)

Use in animal feed

Raw materials for industry (blue economy)

Processing to make fertiliser for cofermentation (+ energy generation)

Processing to make fertiliser through composting

Use for sustainable energy (objective is energy generation)

Burning as waste (objective is destruction, with associated possibility of energy generation)

> **Dumping** (dumping of leftover food is prohibited)

Challenges valorisation of side streams

🥟 Shelf life

- Lack of continuous supply
- Access to expertise and facilities
- Access to market
- Added value vs cost
- 🥏 Law

🥟

Thank you for your attention!



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ZeroWaste

Systemic Innovations Towards a Zero Food Waste Supply Chain

SILL4 - Mobile food valorisation as a service

FOX project – EU workshop Bart Van Droogenbroeck, PhD, EV ILVO 14/12/2022





Funded by
the European UnionThis project is funded by the European Union
under Grant Agreement no. 101036388

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The problem

(1) JRC (20 EC's Knowl (2) FAO (20 Climate Ch

ZeroWaste

Systemic Innovations Towards a Zero Food Waste Supply Chain

| | FW ≈ 2 of EU food production | 0% 3 rd GHC emitter globally ⁽²⁾ | 3 | | | |
|--|------------------------------------|--|--|--|--|--|
| | | 'Ugly food' identifi at a late stage, re the possibilities fo | High ication mism duces & der or bank | uncertainty and natch of food supply mand in the food chain | Understanding unavoidable se stream rather th opportunity | of packaging as an condary waste nan an FLW-reducing |
| | Lock-in effects | alternative valoris Missing economic feasibility of alternative FLW | ation Inability to steer consumer buyin behaviour at the | Missing/ fragmented FLW data ig | Unbalar allocatic innovati among t actors | nced (unjust) on of FLW on cost/benefits food chain |
| | | valorisation process Primary focus at the lower levels of the FLW hierarchy | moment of purc Limited food actor capabilities especia | hase Optimal harves windows are disconnected fi downstream su ally in chain capabiliti | sting rom upply es and | Access/ transportation to available food valorisation facilities is prohibitive for relatively small and |
| 20) Brief on FW in the EU, edge Centre for Bioeconomy 15) Food wastage footprint & ange | | Best-before labels not reflecting real food condition and its shelf-life | cases of diverse, seasonal & disrupt generated food surpluses | short-term dem Gourn Agreemen | nand | seasonal food surplus and more |

Our concept





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From lock-in effects, to SILL designs





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Our objectives

SILL4





ZEROV

What do we expect to deliver?







Key sucess factors

SILL4

Mobile food valorisation as a service



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SILL4 Mobile food valorisation as a service

SILL Coordinator: Bart Van Droogenbroeck







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What is SILL 4about – problems to be solved – challenges?

- Huge volumes of high-quality **perishable** biomass (fruit, veg...) remain underutilized or used as feed or for energy generation, while **opportunities exist for turning them into high added-value products**.
- Their availability is variable and hence the equipment needed to deal with the processing of these fractions into stabilized, added value intermediate or end products needs to be flexible and versatile.
- Such processing capacity is not available in most regions but is highly wanted/needed
- Transporting relatively small and seasonal food surplus quantities to valorisation facilities is prohibitive due to its cost.




66 Would mobile food valorisation as a service make a difference in food waste valorisation?

SILL4

ZEROW Funded by the European Union

• Both EVILVO and DIL have experience with innovative processing technologies



- The GEA VacullQ system is a **lowoxygen** spiral filter press system
- Versatile
- Proven to be able to process a wide diversity of feedstocks
- Small footprint, high throughput

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• Both EVILVO and DIL have experience with spiral filter press





• Both EVILVO and DIL have experience with GEA spiral filter press



PEAR

APPLE

SPINACH

GEA vaculiq vacuum spiral filter



Flanders Research Institute for Agriculture, Fisheries and Food

FOOD PILOT

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• Both EVILVO and DIL have experience with GEA spiral filter press

Puree





GEA vaculiq vacuum spiral filter



GEA engineering for a better world





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Current state – mobile fruit presses: conclusions

- Most (if not all) have similar <u>pressing</u> technology best yields for hard fruit species (apples > pears> ... max 10% softfruit
- Most (if not all) have similar <u>conservation</u> technology basic heat treatment
 'pasteurisation' 80°C fors *little control over temperature & holding time= quality*
- Most units have similar packaging options Bag-in-box 3L 5L
- Units are operational from about end of August 'till end of october 2-3 months only
- Units can process as little as 75-100 kg/client from multiple clients at one location; or on location of single client from 2000-3000 kg onwards











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SILL 4 – Strategic partnership





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SILL 4 – Process & next steps











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1 – SILL4

Update on SILL4 activities so far



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Round 1 – Implementation & DC activities SILL4







Vers fruit





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Foto-impressie testdag 26/07/2022 ZESRPI SUNGOLD

ZEROW project - B2BE

Grondstof:



600 t/month overripe ZESPRI SunGold[™] Port Zeebrugge, Belgium



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Perksoek en sap na vermaling hakselaar + spiraalfilterpers voormiddag:





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Opstelling namiddag links multicut met daarna VaculiQ spiraalfilterpers



Sungold kiwi sap in de extractiecel van de spiraalfilterpers





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Zeer droge perskoek bekomen met optimale procesparameter: bijna enkel nog schil en pitjes in perskoekfractie





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15-20% of fruit is Class II – low price sold to processors or not valorized



Research questions:

- How can we optimal use of the underutilized fruit species?
- What are the optimal processing parameters for multicut + vaculiq (mill & press present in FOX container)?
 - Is there a difference in processing mix of feedstock vs mixing mono-juices?



Research questions:

- How can we optimal use of the underutilized fruit species?
 - => Recipe selection, in discussion with grower
 - => Process parameters tested: 7 channel spiral vs 4 channel spiral







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Research questions:

How can we optimal use of the underutilized fruit species?
 => Recipe selection, in discussion with grower



Preliminary Conclusions

- Mixing feedstock has no impact on yield compared to blending mono-juices!
- Recipe selection is crucial
- Quality control by-products is key in delevering high quality processed product
- By-product might represent commercial value (e.g. seeds from Raspberry & Blackberry).
- Quality analysis ongoing









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3 - SILL4 Round 2 & 3

Where, when, on which feedstocks would we like to use the mobile unit in Flanders?



Round 2 – 2023 – Limburg– focus on Fruit FLW based recipes

Figuur 3. Intensiteitskaart van de fruitsector, euro standaardoutput per ha, 2017



0 - 200 200 - 500 500 - 1.000 1000 2.000 2.000 3.000 3.000 x 15.755)



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Interested actor Limburg : VB = ZEROW partner

<complex-block>

- What type of product? Target nutritional deficit?
- Any available feedstock locally available?
- Cold chain up to delivery can be guaranteed
- Business model? How can production cost be covered?

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Round 3 – 2024 - West-Vlaanderen– focus on Vegetable FLW based recipes



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the European Union

Interested actor West-Vlaanderen: Flemish auction - REO



Surplus produce or class II produce normally not harvested

- Mix of fruit & vegs available in one location
- to into meng benefit user menutarianaki, mite akarantati winter kendentati periodianaki akarantati periodianaki akarantati periodia period

se uto Verleg standaers meen olge veraamsger om naar produkter. De verstering aant is zwaar de visaren naam ei vaartaen segara on versam van de kare.

Logistic hotspot

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Cooperation of growers – invest together?

SILL4 -Mobile food valorisation as a service Challenges...

- Feedstock supply?
 - Growers with surplus and or class II undervalorized produce
 - PO's with surplus
- Business model?
 - Surplus produce donated to food banks and processed before donation
 - Grower's/PO's as processors or buyers
 - Market?
- Regulatory aspects
 - Food safety/HACCPP FAVV/EFSA
 - Waste /waste water... OVAM/VMM
 - Novel Food FOD Economy/EFSA









Questions?



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ZeroWaste

Systemic Innovations Towards a Zero Food Waste Supply Chain

Introduction to

ILVO – Flanders research institute for Agriculture, Fisheries and Food

Lisa Van den Bossche 14/12/2022







This project is funded by the European Union under Grant Agreement no. 101036388

SIRL in Zerow

SIRL = Systemic Innovation Readiness Level a tool to pave the way for SI commercialization & scaling

- SIRL = ZeroW's main tool for monitoring the innovation process in the SILLs
 - Visualises the progress for each relevant innovation dimension
 - used to assess innovation progress in the SILLs
 - encourages the SILLs to address as many relevant innovation dimensions as possible
 - helps the SILLs to identify bottleneck innovations
 - guides scaling strategies



Systemic innovation

- Systemic innovation encompasses a set of innovations addressing different dimensions
- Innovations scale as part of **innovation packages**
 - Core & complementary innovations

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 Scaling of innovative solutions for FLW will require simultaneous upscaling of core & complementary innovations



| SI dimension | Defintion in GA |
|--------------------|--|
| Socio-cultural | Reorganisation of structures, attitudes, behaviours and cultures that lie at the basis of current food systems (habits, values, norms, aesthetic expectations, etc.). For example, a set of creative solutions that anticipate on why and how consumers buy food, to reach a change in habits. |
| Institutional | New and innovative policies, legal frameworks, and educational programs to support the transition to a near-zero FLW system. |
| Governance | New paradigms to achieve better decisions and find better ways to share limited resources, by strengthening cooperation across different sectors and among stakeholders. To resolve social conflicts in an era characterised by complexity and a holistic understanding of well-being. |
| Process | New and innovative processes that create less waste in the entire chain & focus on more efficient use of resources |
| Organisationa l | New or substantially improved management strategies , (cross)organisational structures or working practices (routines, departmentalization, training, capacity building) to improve performance and profitability. For example, waste management and auditing schemes. |
| Strategy | New ways to dynamically and constantly adapt business strategies to never ending internal and external changes. Applies to single organisations, collaborative business models and sectors. |
| Marketing | New or substantially improved promotion, pricing, placement, packaging or sales strategy to enhance the attractiveness of the product and increase market share for low-waste products. Applies to single organisations and sectors. For example, produce alignment to 'cosmetic standards' during pre- harvest, to initiate alternative marketing channels avoiding food loss |
| Product | New or substantially improved goods, wholly new product categories, or services into a business , with respect to its characteristics or intended use, compared to what was previously offered. For example, products based on waste materials. |
| To also alla staal | Now or asherentially improved to shall one instruction equipment have and software and now |

From 9 to 5 dimensions

- Technological
 - Governance
 - Institutional
- Socio-cultural
 - Marketing
 - Product
 - Strategy
- Organisational
 - Proces

- Technological
 - Policy & Governance
- Behavioural
- Business
- Value Chain





The scaling readiness barrel (source: Sartas et al. 2020)

NNOVATION READIN

- Volume of barrel = capacity of innovation package to achieve impact at scale
- The scaling readiness of an innovation is a function of innovation readiness (length) and innovation use (width)
- scaling is limited by the bottleneck innovation

Fig. 1. Scaling Readiness Barrel to illustrate how innovation(s) with the lowest readiness limit an innovation package's capacity to achieve impact at scale.

Scaling readiness variable 1: Innovation readiness



Visual representation





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INVESTMENT SUPPORT

EIP –Innovation, EIP Cooperation VLIF-Agrifood, VLIF-Innovative project support



New measures will be in force within CAP 2023 - 2027. Concrete details and modalities of this are not yet known. We hope to launch these new measures in the first half of 2023.





Europees Landbouwfonds voor Plattelandsontwikkeling: Europa investeert

in zijn platteland

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Aandeel landbouwoppervlakte

Gemeenten van Vlaams Gewest, 2021, in %



Noot: om privacy-redenen zijn er geen cijfers beschikbaar voor gemeenten met slechts een beperkt aantal landbouwbedrijven. De oppervlakte landbouwpercelen wordt toegewezen aan de gemeente waar de hoofdzetel van het bedrijf gevestigd is.

Bron: Statbel, bewerking Departement Landbouw en Visserij




VLIF-Innovative project support (CAP 2015-2022)

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https://lv.vlaanderen.be/subsidies/vlif-steun/projectsteun-voor-innovaties-de-landbouw





Europees Landbouwfonds voor Plattelandsontwikkeling:

Europa investeert in zijn platteland



Target audience

►

Farmer



Group of farmers

- \rightarrow Legal entity
- \rightarrow Main activities: agricultural activities or processing or marketing
- → All associates are farmers





Innovative investments

- Investment types that do not appear on the exhaustive VLIF list of eligible investments and are innovative
- 'the first time in Flanders in a certain subsector of agriculture'

| STEUNGROEP | TYPE INVES- TERING Project: code beschik: baar in een bepaakl staltype en/of serre en/of loods; andere: code beschik: baar buiten een project | Erikel (ver)- nieuw- bouw- N | 880-000 | TECHNISCHE CATEGORIE | BESCHRUVING CODE | EXTRAINFO. |
|---------------------------------------|---|--|---------|---|---|--|
| 30% - Windenergie en zonneboiler | onroerend (andere) | | ja | Overig (vaste constructie) | kleine- en middelgrote windturbine/windmolen | een windturbine met een vermogen kleiner of gelyk aan 300 kW. Windmolens mogen niet meer elektriciteit kunnen produceren den wet op jaarbasis verbruikt wordt op het hedrijf. |
| 30% - Windenergie en zonneboiler | onroerend (andere) | | ja | Energieproduktie (vaste uitrusting) | windmolens | Let op: er is ook de code "kleine- en middelgrote windturbine" met een hoger normbedrag: Windmolens mogen niet meer elektriciteit kunnen produceren dan wet op Jaarbasis verbruikt wordt op het bedrijf. |
| 30% - Windenergie en zonneboiler | onroerend (andere) | | Ja | Energieproduktie (vaste uitrusting) | zonneboiler | |
| 30% - Waterkwaliteit of kwantiteit | onroerend (andere) | | neen | Wateropslag en - behandeling (vaste uitrosting) | aanleg van infiltratiebekken bij wateropslag (o.a. wadi) | |
| 30% - Waterkwaliteit of kwantiteit | onroerend (project) | N | neen | Bouwen/inrichten bedrijfsgebouw of stal | bijkomende mestopslagcapaciteit (drijfmest) | Met investeringen in bijkomende mestoptag worden enkel die investeringen bedoeld die de mestopslagsrapantere op bedrijfunisva bowen bet vestrijk investu tilten. Opgelet- deze bijkomende mestopslagsapasiteit wordt echter maar tot 12 maanden mestopslagsapachtet op bedrijfuniveau gesubsidieerd korv Yulf. Mestopslagsapachtet die verder gast das 11 manden op bedrijfunisvau mag onder gene meike oods vermeld worden bij de aanvraag. De roosters worden beschouwd als onderdeel van de mettiedier. |

https://lv.vlaanderen.be/nl/subsidies/vlif-steun/vlif-steunaanvraag



VLIF Agrifood (Agrivoeding) (CAP 2015-2022)

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https://lv.vlaanderen.be/subsidies/vlif-steun/vlif-steun-aan-de-agrovoedingssector





Europees Landbouwfonds voor Plattelandsontwikkeling:

Europa investeert in zijn platteland



Investments

Investments in the processing and marketing of agricultural products:

- have one of the following **goals** :
 - a) increasing the quality, food safety or added value of agricultural products, and which relate to the first stage of the processing process;
 - b) valorise residual flows resulting from the processing of agricultural products;
- **added value** for the **farmer** as a supplier of the agricultural products to be processed or sold.

-> make the agri-food chain more sustainable



Target audience

- There are three types of beneficiaries:
 - 1. processors belonging to certain NACE codes; (~ 1 st processing)
 - 2. groups of farmers;
 - Legal entity;
 - Main activities: agricultural activities or processing and marketing
 - At least half of the partners are farmers and more than half of the voting rights are in their hands
 - 3. a combination of these beneficiaries.



Europees Partnerschap voor Innovatie (EIP)

Contact Persons : Els Lapage & Peter Coucke

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https://lv.vlaanderen.be/voorlichting-info/voorlichting/europees-partnerschap-voor-innovatie-eipoperationele-groepen

02 552 79 39





Europees Landbouwfonds voor Plattelandsontwikkeling:

Europa investeert in zijn platteland



Target audience

 \bigcirc

- Supporting pioneer farmers who want to future-proof their business through innovation and collaboration.
- Beneficiaries are partnerships of at least one active farmer and one or more participants such as actors in the agri-food chain, SMEs, innovation support services, advisors, knowledge centres, producer organisations, branch organizations and NGOs.



Two topics

- EIP-Innovation: support for a partnership for interactive knowledge creation/knowledge exchange regarding an innovative (technological) product, service, process, technique in collaboration with experts (knowledge centres, advisors,...)
- EIP Cooperation (Samenwerking): support for the preparation and implementation of a new thematic cooperation between farmers and other social actors on new marketing methods or organizational structures.





Fox project

Luc Vanoirbeek, Algemeen Secretaris VBT

13 December 22 Irish college









HOOGSTRATEN HOME OF QUALITY









VBT-PO's omzet 2021 (€1.000)

€ 1.118.995 € 728.230 € 389.749





Ingro: € 108.260

VBT-PO's omzet 2017-2021 (€1.000)







VBT-PO's top-10 producten aanvoer, prijs en omzet 2021





Aanvoer, prijs en omzet | Belangrijkste producten VBT-producentenorganisaties 2020-2021



VBT-PO's fruit omzet 2017-2021 (€1.000)



