

Industry initiatives to reduce food waste

**Progress towards zero waste in
the EU potato processing supply chains**

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FUSIONS European Platform Meeting

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EUPPA: 6 national associations & 13 companies

Represents >90% EU market (based on potatoes used for processing)



FNTPT





Our Vision

“As the European Potato Processors Association, feeding millions of people every day, we want a Europe where our businesses and suppliers can innovate and flourish in a sustainable way.

Where we engage pro-actively with our consumers to inspire and help them to make healthy lifestyles their first choice, where we collaborate with our communities and stakeholders to accelerate the changing consumption and production patterns.

Together we want to co-create the solutions for a sustainable future, promoting social, environmental and economic wellbeing across our supply chain.”



2014: EUPPA survey - collecting initiatives

- Understanding initiatives to reduce waste in EU potato processing supply chains
- EU potato processing sector adopts total chain approach to reduce food waste
- Companies work with local supply chains reducing food losses starting at the farm

Potato Processing Industry – good practice to prevent food waste		% of businesses currently adopting this best practice
Programme of new variety development, to improve disease resistance, reduce input requirements (water, fertiliser, plant protection products) and increase the usable portion of the potato for processing		80-100
Better understanding of soil type, plant spacing and soil nutrition resulting in improving marketable yield per hectare		80-100
De-stoning soil before planting		40-50
Limit mechanical potato damage during harvesting and minimising drop heights at unloading, post-harvest		100
Effective sprout control and air quality management to reduce losses during long term potato storage		100



2015: EUPPA position - reduce, reuse, recycle or recover

EUPPA members **valorise all potato processing by-products** into food, feed, bio-based materials, fertilizer and / or bio-fuels. We target zero waste to landfill.

- **Continuous process improvements and product innovations:**
 - ✓ Co-product lines to produce dehydrated potato flakes and/or chopped & formed products (made from small parts and whole potatoes not suitable for frozen potato products);
 - ✓ Potato specialties (like potato wedges, cubes or slices), from undersized potatoes not suitable for French fries. This is mainstream practice throughout the industry.
- **Efficient cooking techniques**, together with sophisticated **oil recovery** systems enable utilization of cooking oil > 98%. When no longer usable, locally turned into biofuel.
- **Inedible raw potato waste** (peels, slivers) preferably turned into **animal feed, partly composted into natural fertilizer and/or digested** (bio-digesters) **to produce biogas**.
- **Tare soil** – arriving with potato deliveries at the factories – is cleaned (stones and small potatoes removed) and reused to increase lower level fields / improve soil quality.
- **Surplus finished products** – donated to local food banks and other charities.



2016: Benchmarking data & discussing insights

- **Stimulating members to share data and best practices**
 - you can only manage what you measure, learn from best practices
 - understanding differences in waste management strategies
- **EUPPA members apply different strategies** to tackle (food)waste
 - different decisions driven by country policies (e.g. more green energy) and company strategies
- **Past company investments** strongly influence future (food)waste destinations
 - companies need payback on their investments ... 'use it or loose it'
- **Market circumstances define future opportunities** to change strategies
 - raw material shortage and price will drive 'by-product' destinations up on food waste hierarchy
- **Policy makers can positively influence** change by using proper instruments
 - balance need for potential (former) food by-products turned into feed vs green energy production
- **Businesses need to assess volume & value** of waste streams
 - Look at economic and environmental perspective when re-assessing business policies & plans



2016 - Valorisation by-products & waste streams

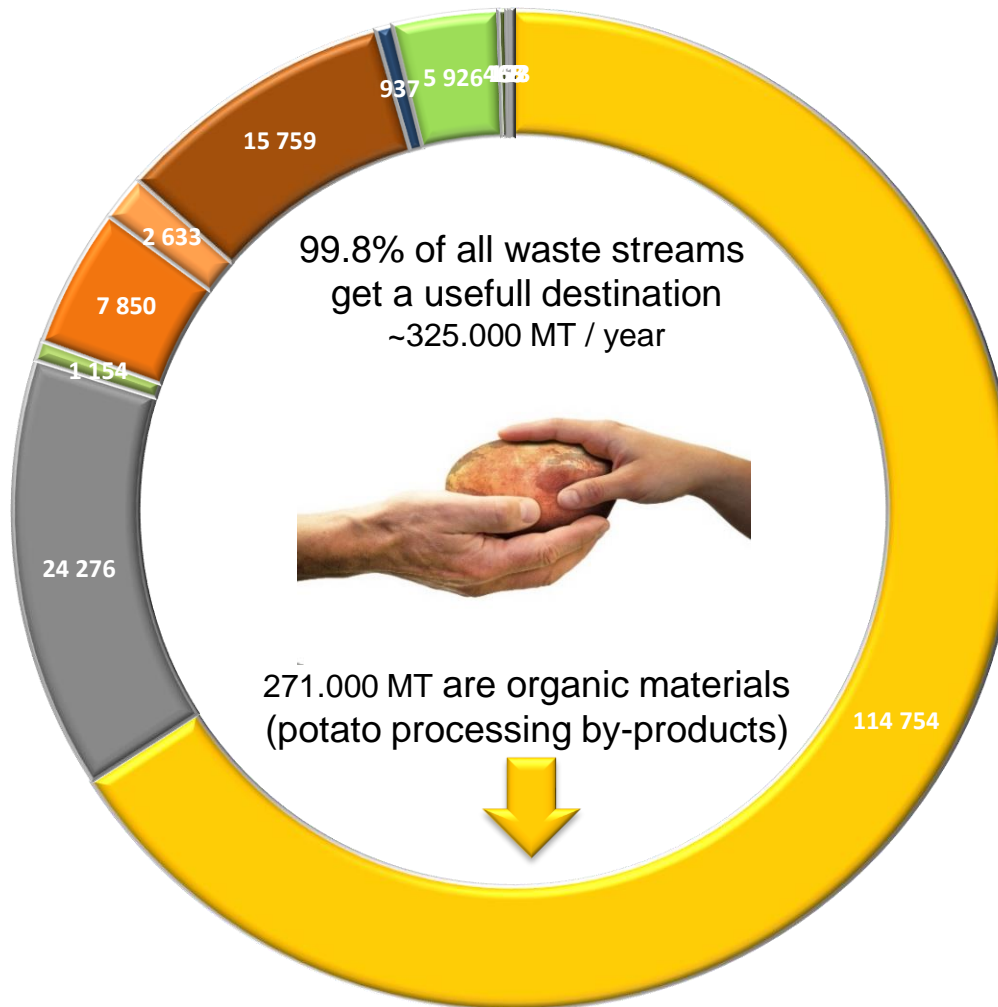
examples EUPPA members

EUPPA members - 2015 waste streams breakdown (% of total weight)					
Type of by-product / waste stream	Company 1 (5 plants)	Company 2 (4 plants)	Company 3 (1 plant)	Company 4 (7 plants)	Destination by-product / waste stream
By-products (peels, raw slivers, frozen shorts, batter crumbs, outdated products)*	86.5 %	72.9 %	5.6 %	79.3 %	Reused as certified cattle feed, daily collected on-site by dedicated animal feed companies / farmers
White (native) potato starch*					Recycled into bio-based materials for technical industry (wall paper glue, drilling mud, bio-plastics)
Organic waste digested** (partly unsuitable for certified feed)	13.5% turned into biogas	27.1% turned into biogas	94.4% turned into biogas	20.7% turned into biogas	Recovered in onsite bio-digester (producing biogas as renewable energy for own plant or sold to grid)
Organic waste composted** (not suitable for certified feed)					Recovered / recycled into compost (by external companies OR fermented in onsite bio-digesters)
Used / spilled cooking oil** (not suitable for certified feed)					Recovered, used as bio-fuel (e.g. for steam boilers in local horticulture, or biofuels for transport)
Struvite (minerals recovered from wastewater)	0.6%	0.0%	n.a	0.0%	Reused as natural fertilizer (suitable for horticulture and arboriculture)
Wastewater treatment sludge	5.1%	8.7%	23.1%	7.3%	Recycled into natural fertilizer though composting
Clean (tare) soil from potatoes	15.3%	17.7%	8.8%	19.0%	Reused as soil on local land (at approved area's)
Paper/ Cardboard	0.3%	0.2%	0.3%	0.4%	Recycled into cardboard
Plastic / PE film	0.1%	0.4%	0.1%	0.1%	Recycled into lower grade plastics
Metals	0.1%	0.1%	0.1%	0.0%	Recycled into metals
Mixed company waste (non food)	0.2%	0.3%	0.3%	0.3%	Incinerated by dedicated waste companies
<p>* Green coloured categories are NOT considered food waste according to the FUSIONS definitional framework</p> <p>** Orange coloured categories are technically considered food waste according to the FUSIONS framework</p> <p>Black coloured waste categories are non-food and excluded from total, before calculating food waste volume or percentages</p>					



EUPPA examples – Lamb Weston / Meijer

Zero waste to landfill, 0.2% waste incinerated



Waste streams by destination

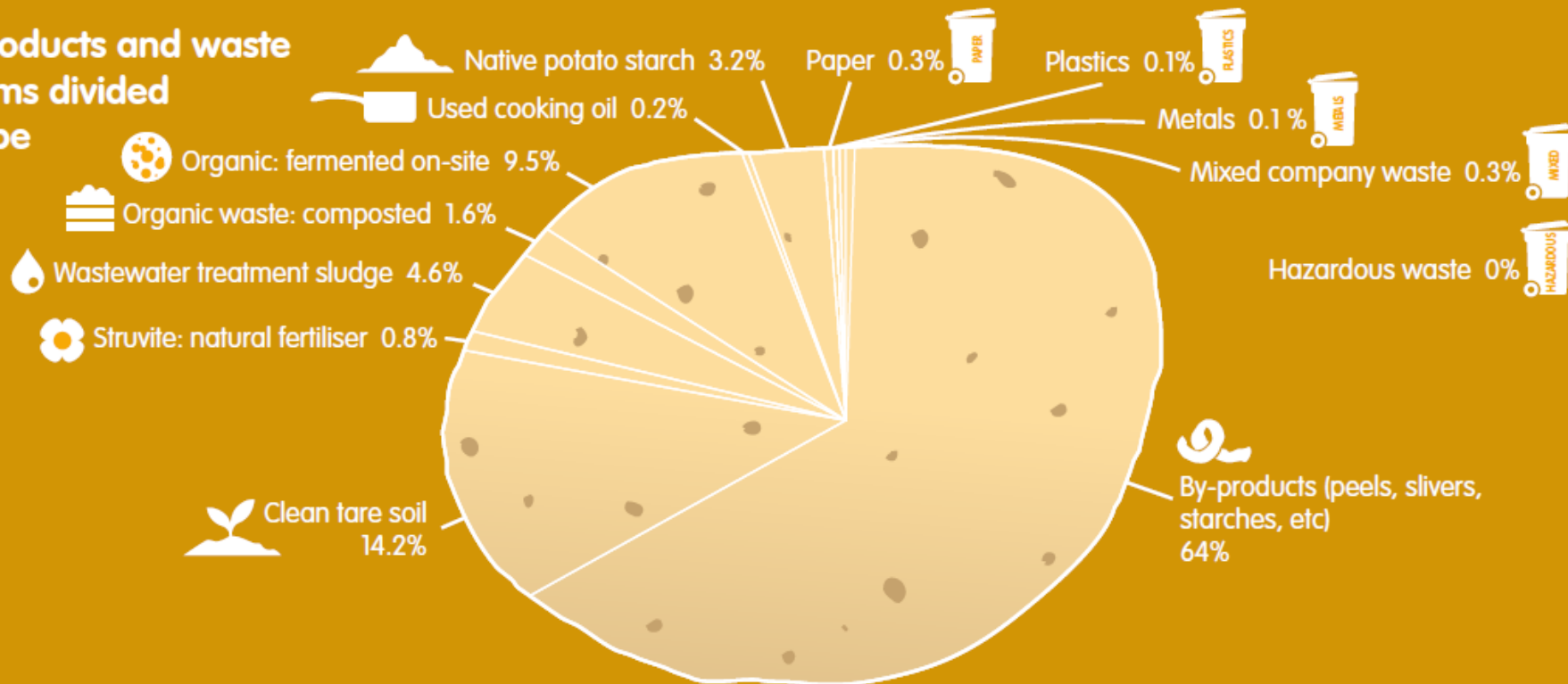
- Reuse (feed)
- Reuse (soil)
- Reuse (fertilizer)
- Composted (fertilizer)
- Composted (fertilizer)
- Recovery (bio fuel)
- Recovery (bio fuel)
- Recycling (biobased materials)
- Recycling (materials)
- Recycling (materials)
- Recycling (materials)
- Incineration (mass burn)



Valorization of processing by-products and other waste streams

"Our key challenge for waste is not to reach our 100% reuse or recycling target, as we are almost there with 99.7%. It's how to get more value out of our residual waste streams from both an environmental and economic perspective."

By-products and waste streams divided by type



Food Losses & Waste - mass balance

Baseline for future opportunities (farm-2-fork)



Food losses & Waste - Mass balance model



"Half of the original (edible) mass is lost between the potato field and frozen products shipped to our customers, but only a few percent is spoiled and considered food waste"

Tackling (food)waste is a company priority

Key learnings:

1. Make tackling (food) waste a company priority and communicate your commitments
2. Understand economic & environmental impact (volume & value) of all your waste streams
3. Define KPI's, set targets and measure - then manage what you measure
4. Create roadmap to valorise your by-products, assign time & resources, stay focused
5. Look at total value chain, explore opportunities farm-2-fork, collaborate with others
6. Creativity, persistency, analysis and learning are key for continuous improvement



+10%
Potato
utilization

Maximize
by-products
valorization

Zero
waste
to landfill



EUPPA examples - McCain

Zero waste to landfill, 0.3% waste incinerated



McCain tackling food waste across the value chain

- 30% (90 million tons) of food is wasted per year in Europe while 15% of the continent depends on food aid
- Food waste occurs at every step of the value-chain



Left-over in the field



Out of specifications



Food waste in plants



Distribution (Retail & FS)



Consumers - on the plate

Good agriculture practices
Pilot **gleaning** project 2013
Gleaning with McCain
employees 2015



Zero food waste
in manufacturing
plants



Let's reach
them!

EUPPA examples – Farm Frites Poland

Zero waste to landfill, 0.3% waste incinerated



Organic by-product streams converted into nearby **bio-digester** to produce bio-gas

- ❑ Organic rest streams converted into biogas in nearby bio-digester, FFP has onsite WWT
- ❑ Production of green energy to meet national carbon emission reduction target
- ❑ Farmers located (too) far from company and not interested in potato based animal feed.



Potato Flake line: potatoes and short pieces sorted out of French Fries lines processed into flakes

Company Environmental Goals 2020: Waste management

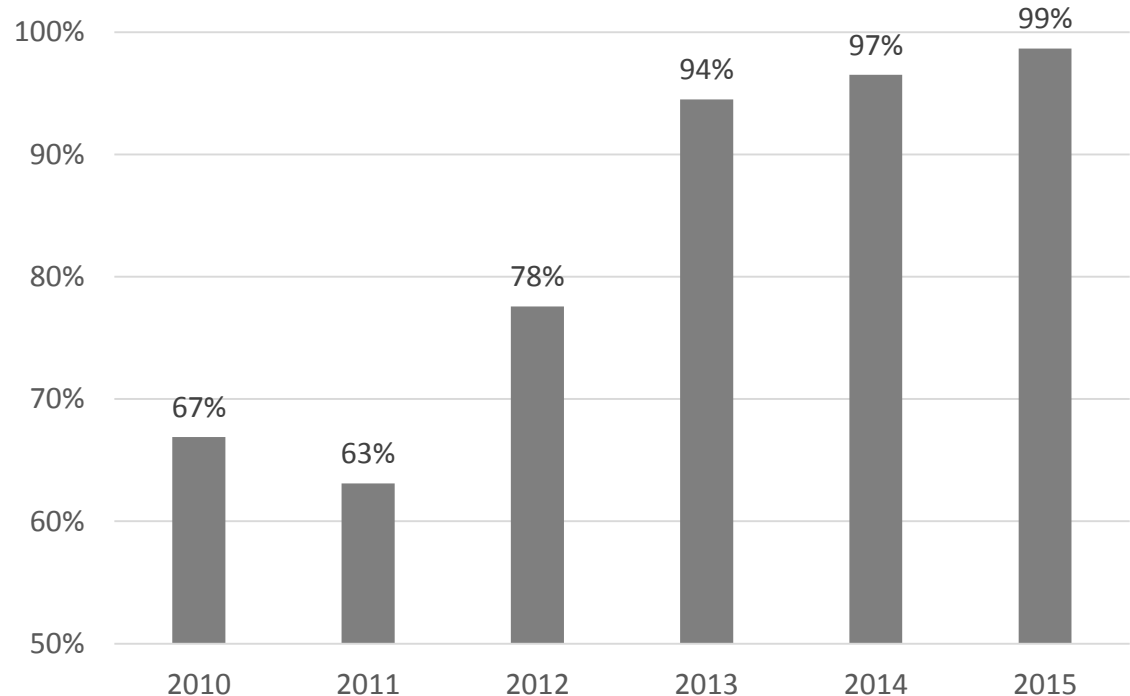
Waste



Zero organic waste
sent to local landfill

22% was sent in 2012

Recycling Level



Local Landfil: only mixed communal waste (max. 10 tonnes / month)

THANK YOU!

