How automation and digitalisation improves efficiency, quality and waste – a comparative study

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Tetra Pak®
PROTECTS WHAT'S GOOD

45% lower product waste
in highly automated and digitalised plants

Want to know how?

20% fewer packaging line stops
in highly automated and digitalised plants

Read all about it.

11% less packaging material waste
in highly automated and digitalised plants

Let us show you how.

Reduce overall defect rate by up to 96%
in highly automated and digitalised plants

Want to see how it's done?

Want to know more about how we got these results?
Jump to an overview of the study methodology.

45% lower product waste in highly automated and digitalised plants

Automatic processes, real time measurements and smart functions in highly automated and digitalised plants showed a whopping 45% lower overall product waste in production over 4 years compared to less automated plants with low automation.

Want to know how low you can go on waste in production?

Get in touch today to find out.

IN-DEPTH

Check out the detailed study results.

Download our infographic and learn more about Tetra Pak® PlantMaster

20% fewer packaging line stops in highly automated and digitalised plants

Highly automated and digitalised dairies showed 20% higher OEE than dairies with low automation and digitalisation.
And highly automated and digitalised juice production plants showed 7% higher OEE than their less automated and digitalised counterparts.

The higher the complexity of the plant and SKUs, the more plant performance could be improved with automation and digitalisation.

IN-DEPTH

Check out the detailed study results.

Learn more about Tetra Pak® PlantMaster

11% less packaging material waste in highly automated and digitalised plants

Highly automated and digitalised dairies showed fewer stops in production and filling, which also means a lot less packaging material goes to waste. That's good news for the bottom-line and for the environment.

In this study, highly automated and digitalised dairies had 11% less packaging material waste than their less automated counterparts.

How much can you cut your packaging material waste with automation?

Get in touch today and find out.

▶ IN-DEPTH

Check out the detailed study results.

Find out how to be more competitive with Tetra Pak® PlantMaster

Reduce overall quality sampling defect rate by up to 96%

By digitalising quality sampling in dairies, overall random defect rate per 10,000 packages was reduced by up to 96%.

▶ IN-DEPTH

Check out the detailed study results.

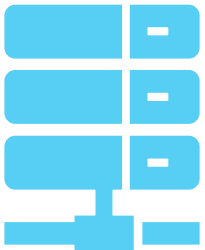
Contact us today and to see how it's done.

How we measured the impact of automation and digitalisation in our field studies to get these results

For years, we've seen automation and digitalisation solutions deliver big improvements in our customers' operations, and we wanted to know more. Just how much improvement could we achieve? Was it possible to measure it?

To find out, we started an extensive study to track and measure performance in customer operations with similar set ups, sizes, locations and products – both with and without automation and digitalisation solutions.

Want to know more about our methodology for the study?



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Study methodology

- A comparative study based on field data
- Large number of processing plants worldwide
- 15 years of data collected
- Comparable sites with similar size, location, set up and products
- Statistically representative sample
- Automated and digitalised plants vs. non-automated, non-digitalised plants
- Comparing specific lines in order to isolate the data

45% lower product waste in highly automated and digitalised plant

In this study, comparing two beverage production sites, the plant with low automation and digitalisation manually logs production data. In the plant with high automation and digitalisation on the other hand, automation controls and tracks the flow of water and ingredients in real time with Tetra Pak® PlantMaster.

Plant with low automation and digitalisation
In the plant with low automation and digitalisation, you can track your waste level, but it's a time-consuming and potentially error-filled process – and gives no hint as to where and how to minimise waste.

Highly automated and digitalised plant
In the highly automated and digitalised plant, Tetra Pak® PlantMaster recipe and batch manager automatically controls product quality and senses, for example, brix level in real time. This allows the system to automatically compensate so you don't produce off-spec products.
The batch reports let you see exactly where and how you can make adjustments in your process and recipes to reduce waste for huge product cost savings, while also saving you lots of time, hassle and risk of error by eliminating the manual logging.

45% lower product waste in highly automated and digitalised plant

PRODUCING JUICES, NECTARS, STILL DRINKS AND PLANT-BASED BEVERAGES

Juice producer with low automation & digitalisation

14 Tetra Pak filling lines

4 bottle lines

Produced **385** million litres in 2020

vs.

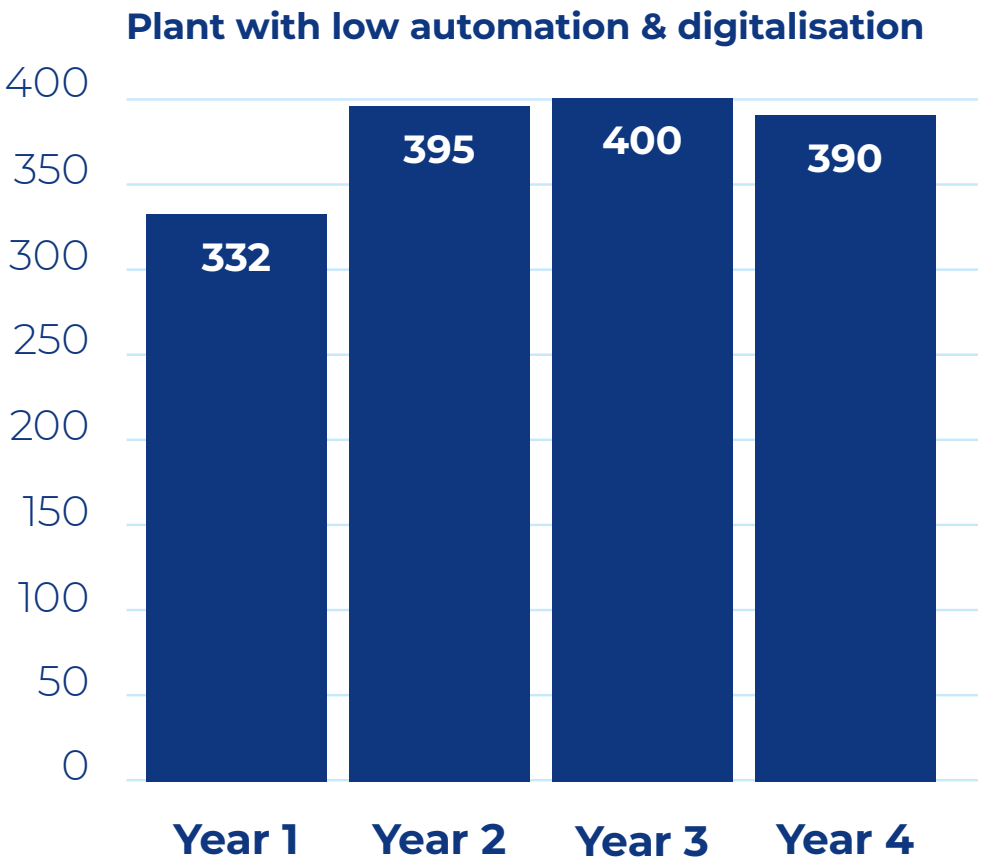
Juice producer with high automation & digitalisation

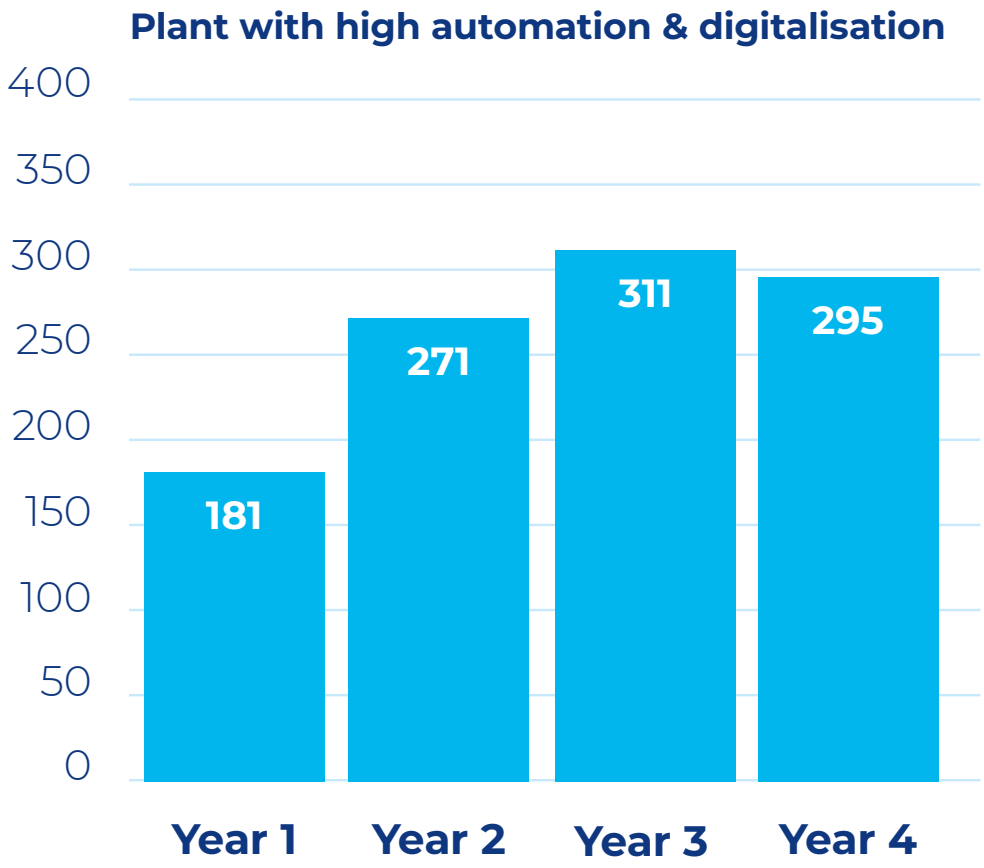
7 Tetra Pak filling lines

8 lines from other suppliers

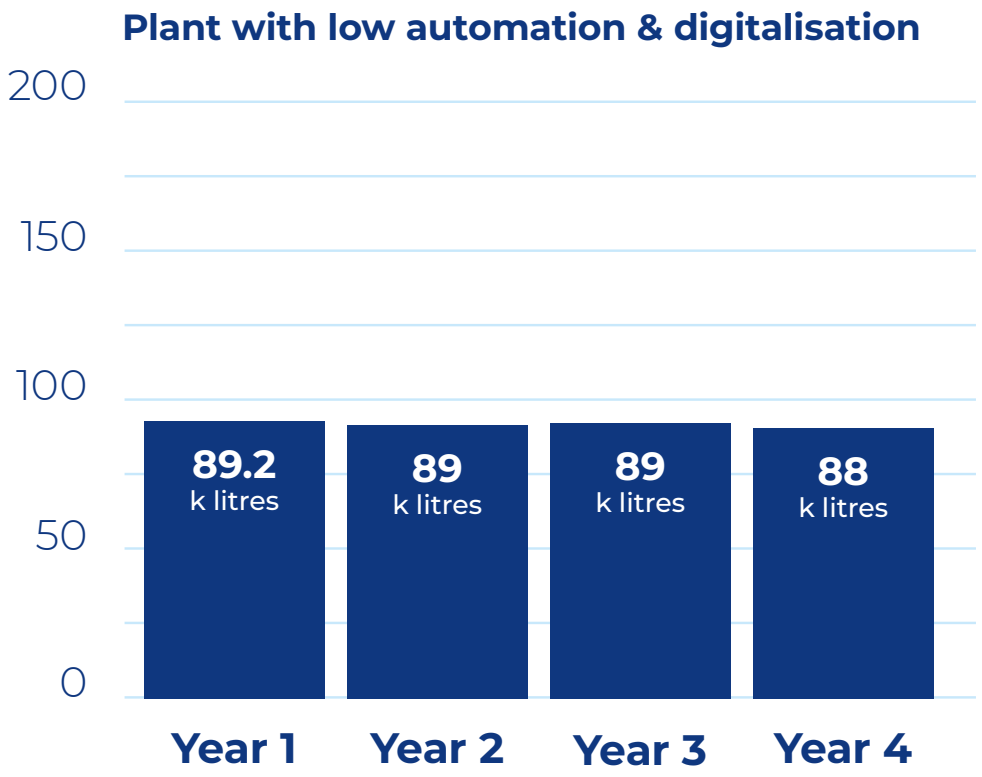
Produced **295** million litres in 2020

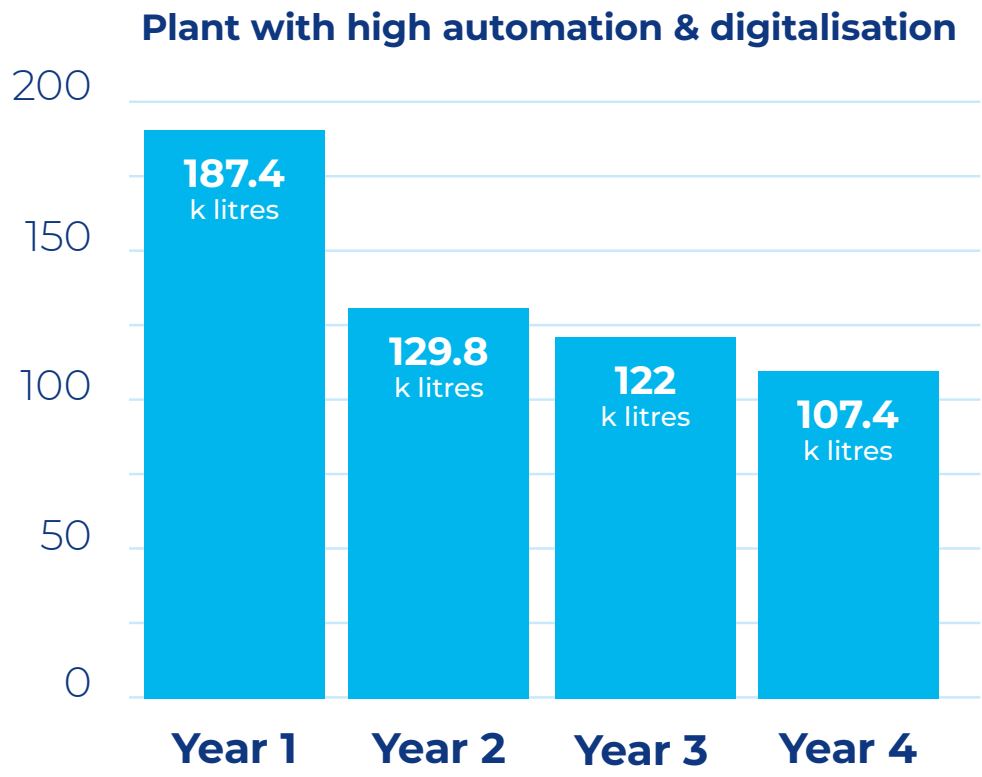
Comparing number of SKUs





Comparing average order size and production consolidation

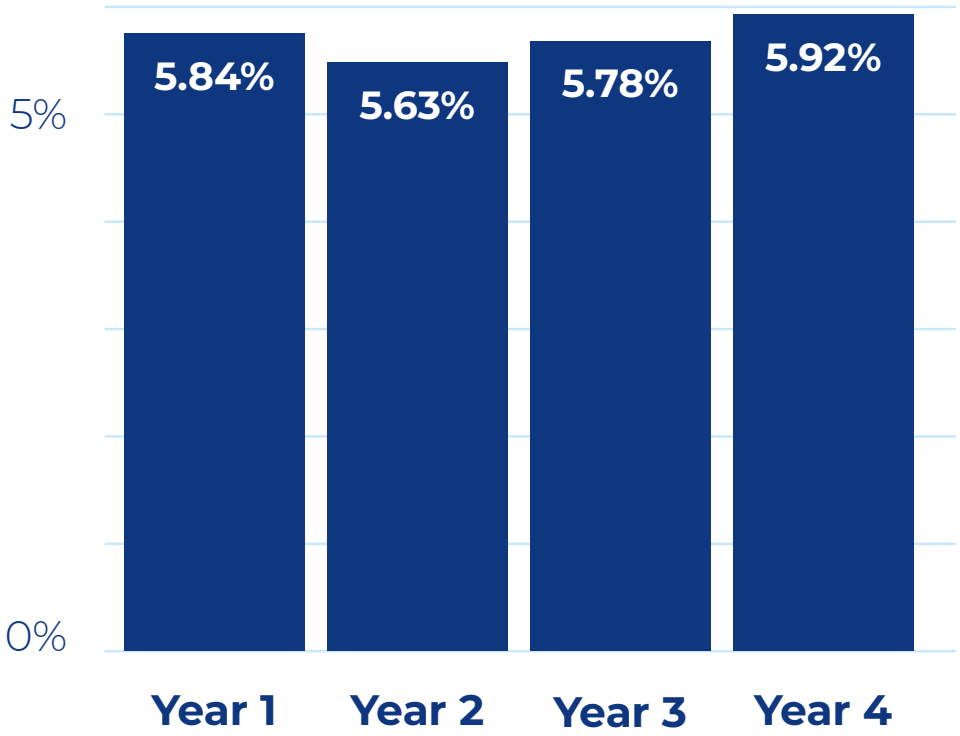




Automation and digitalisation enables reduced average order size over time.

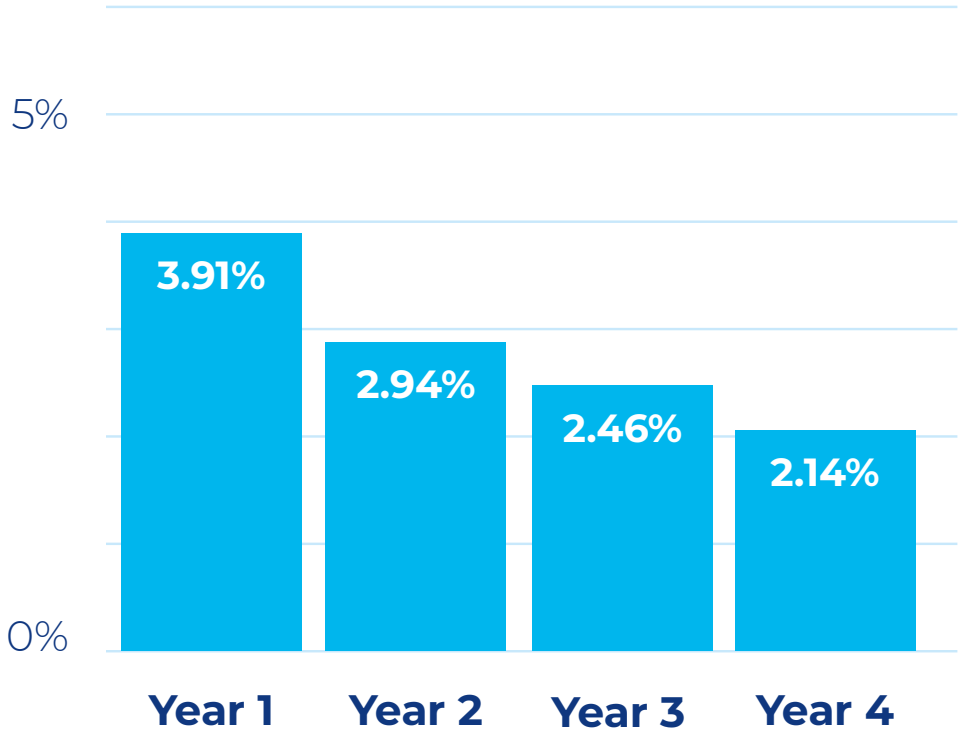
Production waste evolution

Plant with low automation & digitalisation



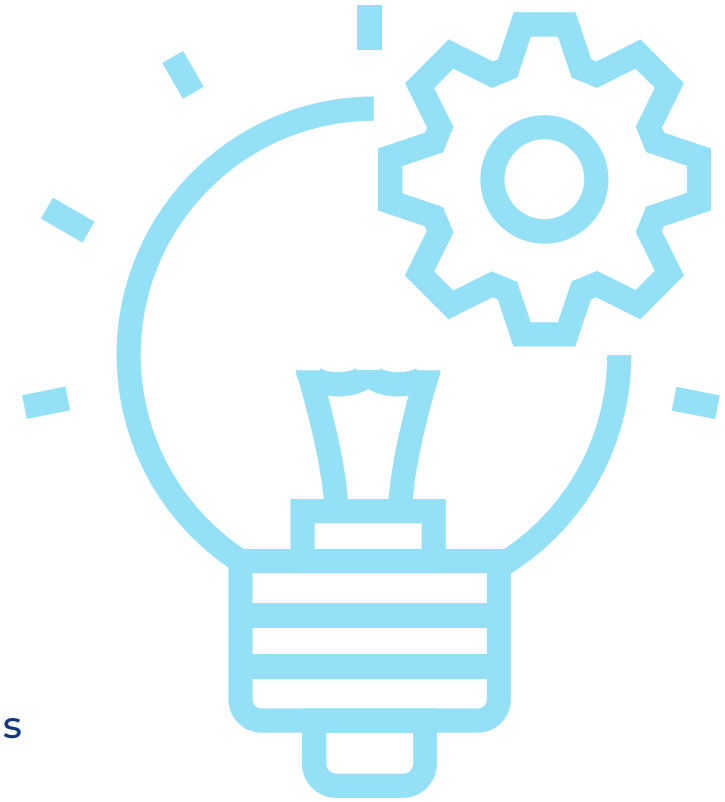
No improvement of waste over time.

Plant with high automation & digitalisation



Waste reduced over time even though order size is reduced. Automation and digitalisation enables this.

20% fewer packaging line stops in highly automated and digitalised plants



In this study, we compare two dairies and two juice production plants to see how much higher OEE you can achieve by automating your plant. A high level of automation and digitalisation is especially valuable for plants dealing with high complexity and a large number of different products.

The highly automated and digitalised dairy and juice production plants experienced 20% fewer filling machine and line stops during production, as well as 9% fewer plant-related stops. Thus, high automation and digitalisation with Tetra Pak® PlantMaster makes it possible to run high volumes with a high number of SKUs – letting you sweat the assets, increase your output and capture market growth with a wide product range.

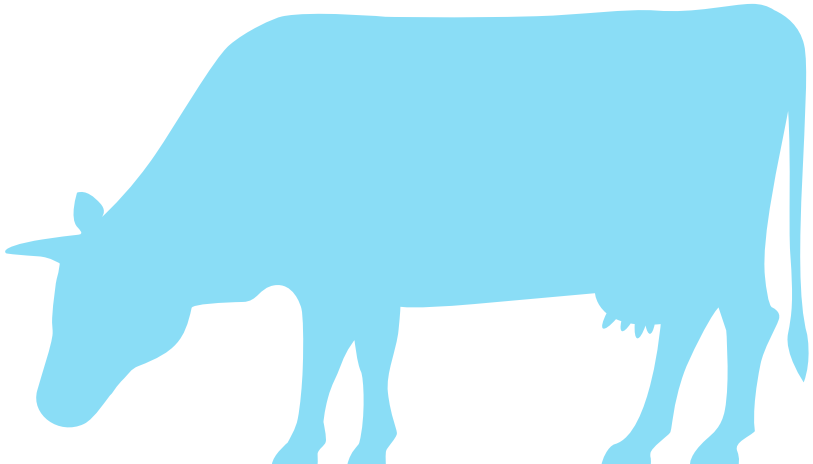
20% fewer packaging line stops in highly automated and digitalised plants

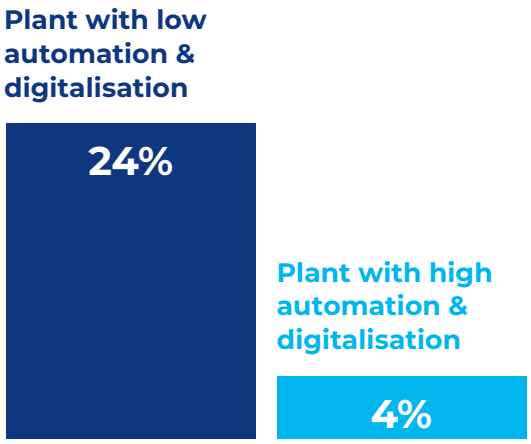
PRODUCING MILK AND CREAM

Dairy with **low automation & digitalisation**
High speed lines:
Tetra Pak® A3/Speed & Tetra Pak® TBA/21

vs.

Dairy with **high automation & digitalisation**
High speed lines:
Tetra Pak® A3/Speed & Tetra Pak® TBA/21





Packing line stops

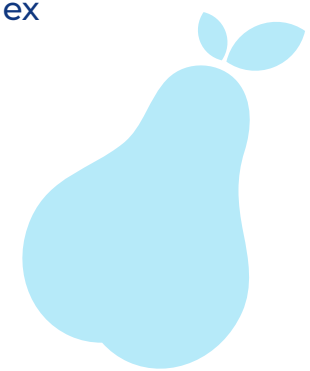
9% fewer plant-related stops in highly automated and digitalised juice plants

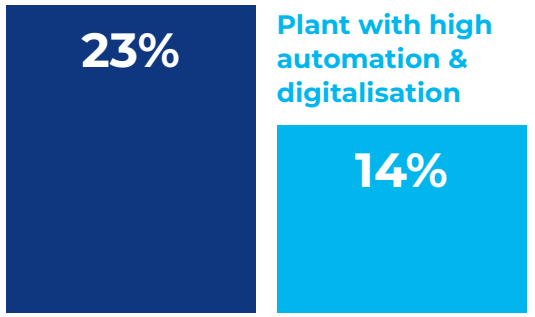
PRODUCING 100% JUICE

Juice producer with **low automation & digitalisation**
Diffused lines:
Tetra Pak® A3/Speed
& Tetra Pak® A3/Flex

VS.

Juice producer with **high automation & digitalisation**
Diffused lines:
Tetra Pak® A3/Speed
& Tetra Pak® A3/Flex





Plant-related stops

11% less packaging material waste in highly automated and digitalised plants

We studied two dairies and juice production plants – one of each with high automation and digitalisation and with low automation and digitalisation respectively – to see how much a highly automated, digitalised process can reduce packaging material waste.

The first advantage is that all the packaging material going in and out is automatically measured, since, as we know, you can't improve what you can't measure.

The second advantage is that since most packaging material waste occurs during stops – and automation and digitalisation reduces filing machine and line stops by 20% or more – significantly less packaging material goes to waste.

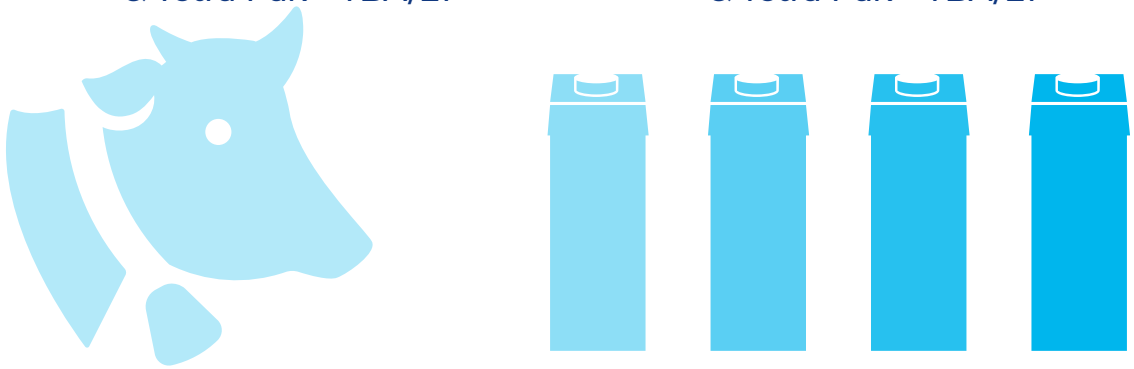
11% less packaging material waste in highly automated and digitalised plants

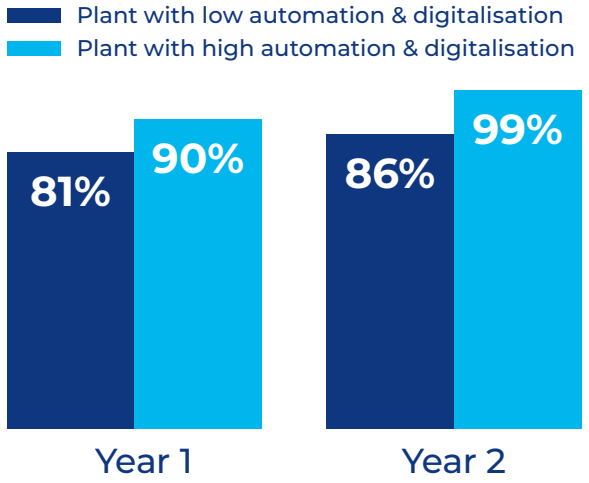
PRODUCING MILK AND CREAM

Dairy with **low automation & digitalisation**
High speed lines:
Tetra Pak® A3/Speed & Tetra Pak® TBA/21

vs.

Dairy with **high automation & digitalisation**
High speed lines:
Tetra Pak® A3/Speed & Tetra Pak® TBA/21





Packaging material utilisation

2% less packaging material waste in highly automated and digitalised plants

PRODUCING 100% JUICE

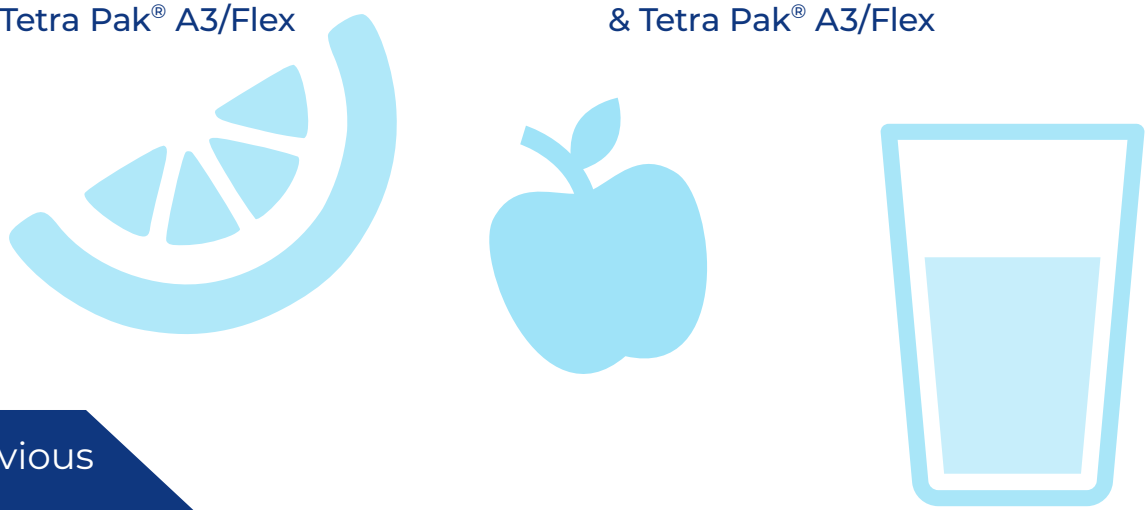
Juice producer with **low automation & digitalisation**

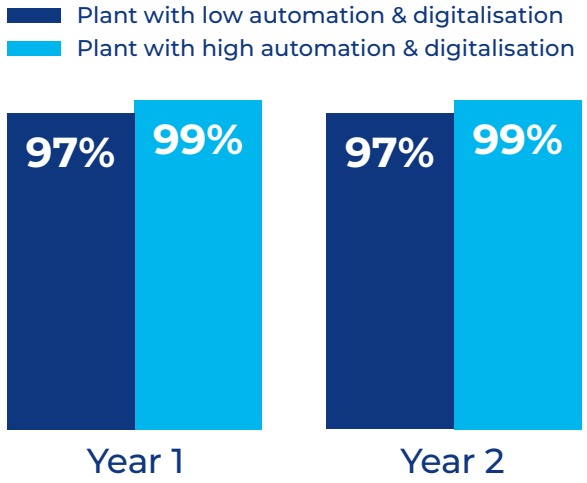
Diffused lines:
Tetra Pak® A3/Speed
& Tetra Pak® A3/Flex

vs.

Juice producer with **high automation & digitalisation**

Diffused lines:
Tetra Pak® A3/Speed
& Tetra Pak® A3/Flex





Packaging material utilisation

Achieve huge reductions in quality sampling defect rate

In this study we looked at three dairies using digitalised quality sampling on packaging lines with Tetra Pak® PlantMaster and compared the performance directly to manual quality sampling on non-automated lines. In the three plants studied, we analysed the one-litre package format, used for approximately 30 SKUs over a four-year period.

The result? All three dairies reduced their defect rate significantly. And two of the dairies achieved huge reductions, since they had not previously worked on improving quality indicators.

Achieve huge reductions in quality sampling defect rate

PRODUCING MILK

PLANT A

Producing milk
Tetra Brik® Aseptic 1000 Base
4 Tetra Pak® A3/Flex lines
4 Tetra Pak® TBA/8 lines

Producing 75 million litres per year

PLANT B

Producing milk
Tetra Brik® Aseptic 1000 Base
5 Tetra Pak® A3/Flex lines

Producing 82 million litres per year

PLANT C

Producing milk
Tetra Brik® Aseptic 1000 Slim
4 Tetra Pak® A3/Flex lines

Producing 93 million litres per year

Achieve huge reductions in quality sampling defect rate

78%
average reduction
of aimed defect rate per 10,000 packages in quality sampling

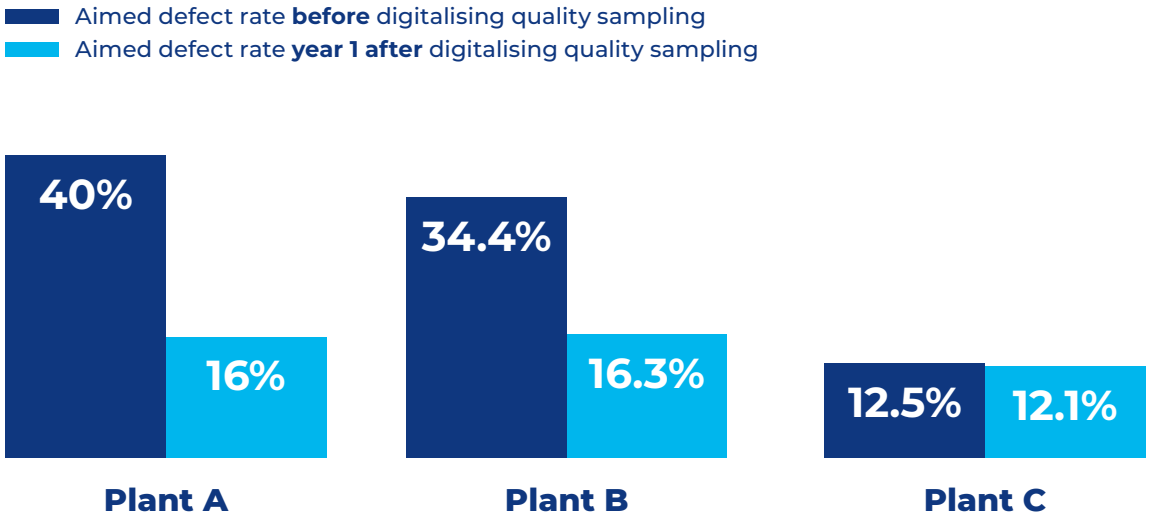
89%
first year average reduction
of random defect rate per 10,000 packages quality sampling

96%
overall average reduction
of random defect rate per 10,000 packages quality sampling

17%
average rate reduction
of warehouse defect rate per 10,000 packages in quality sampling

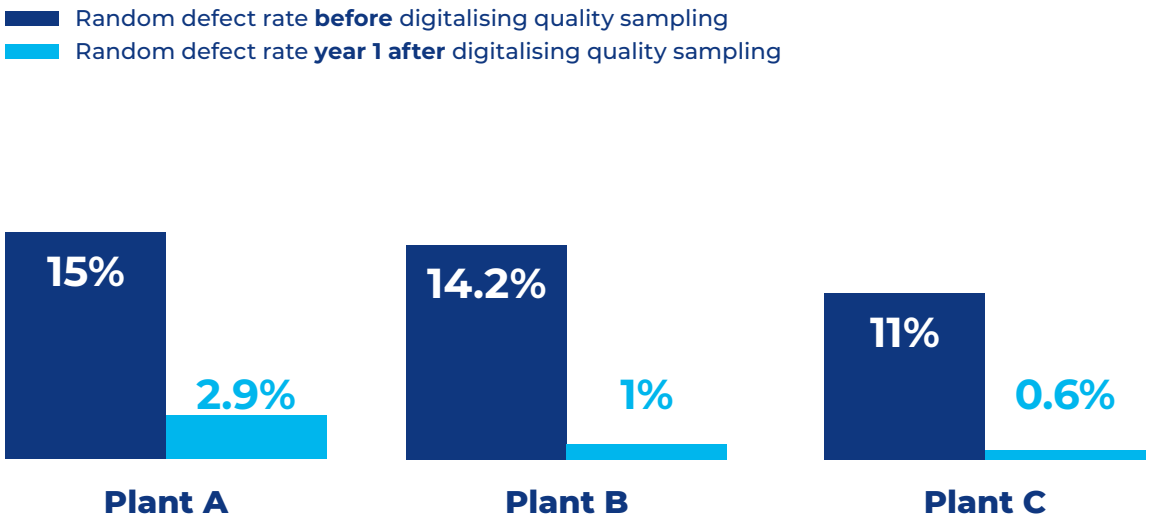
Achieve huge reductions in quality sampling defect rate

78%
average reduction
of aimed defect rate per 10,000 packages in quality sampling



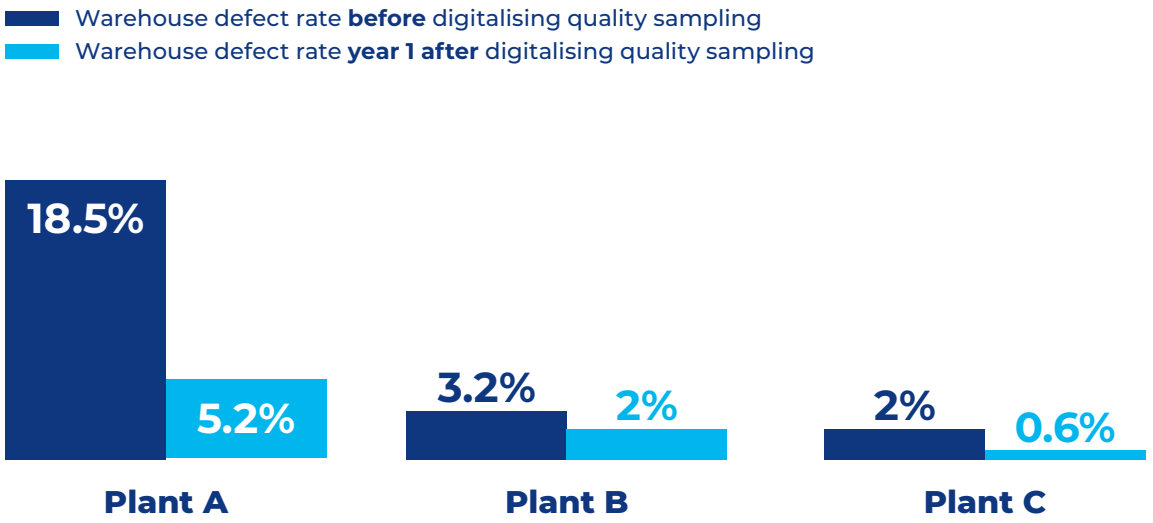
Achieve huge reductions in quality sampling defect rate

96%
overall average reduction
of random defect rate per 10,000 packages quality sampling



Achieve huge reductions in quality sampling defect rate

17%
average rate reduction
of warehouse defect rate per 10,000 packages in quality sampling



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