PLANTegg

in ovo gender determination by PCR:

precise, fast and sustainable

The German Animal Welfare Law

01-01-2022

D1

01-01-2022

D9 - D14

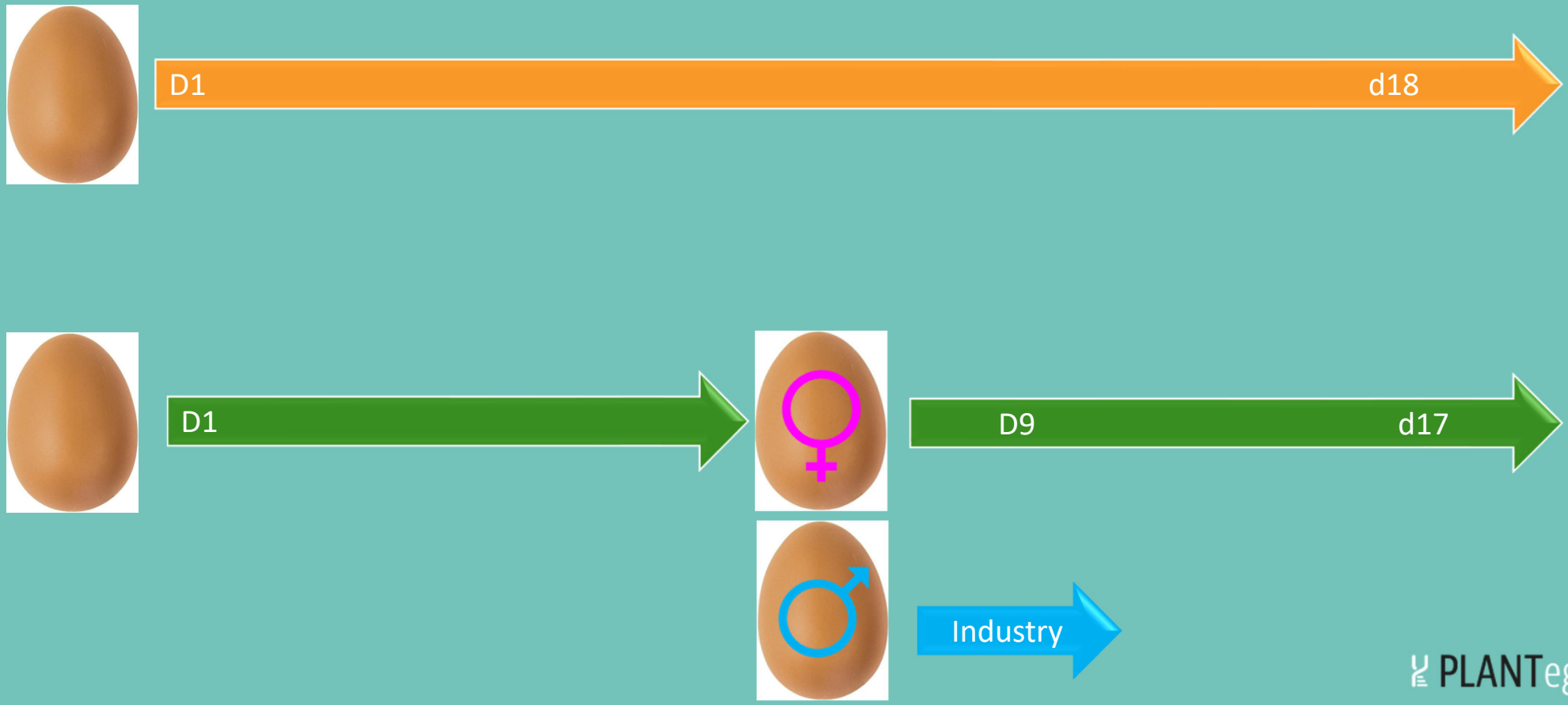
Netherlands, France, Switzerland will follow

01-01-2024

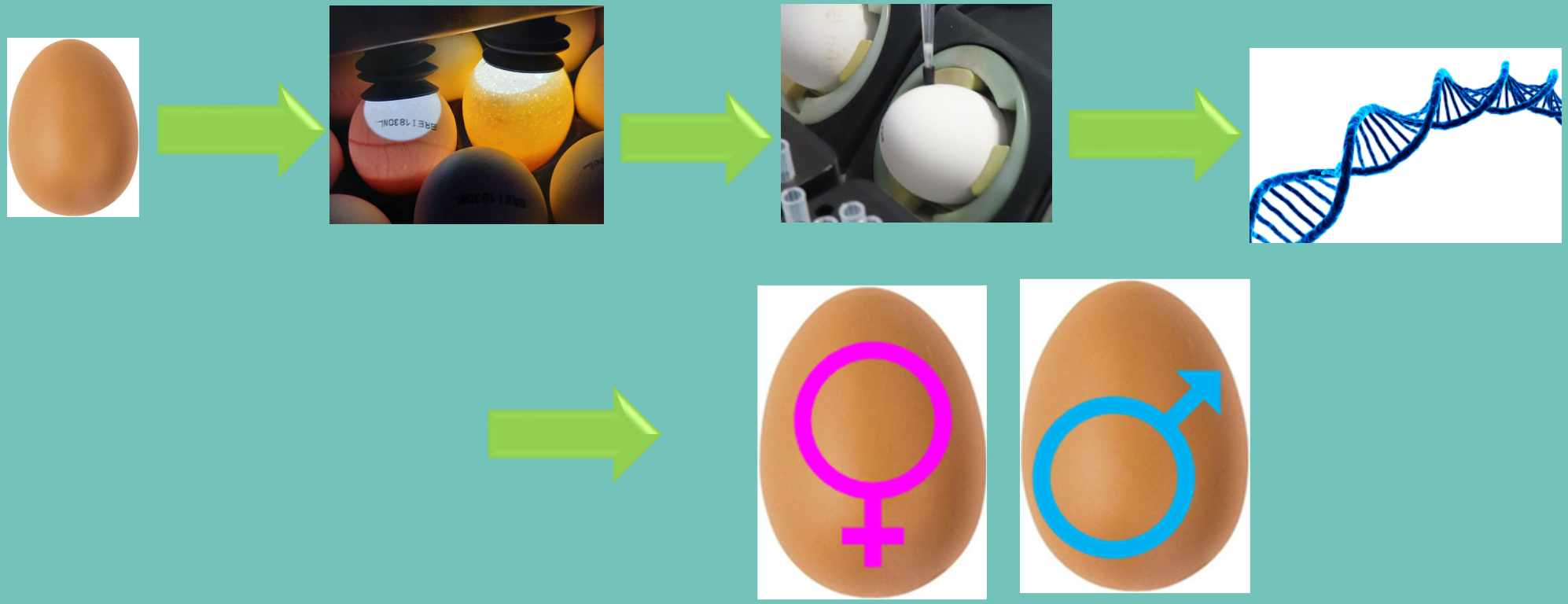
<D7

01-01-2024

Conventionell vs. PLANTegg



PLANTegg at day 9



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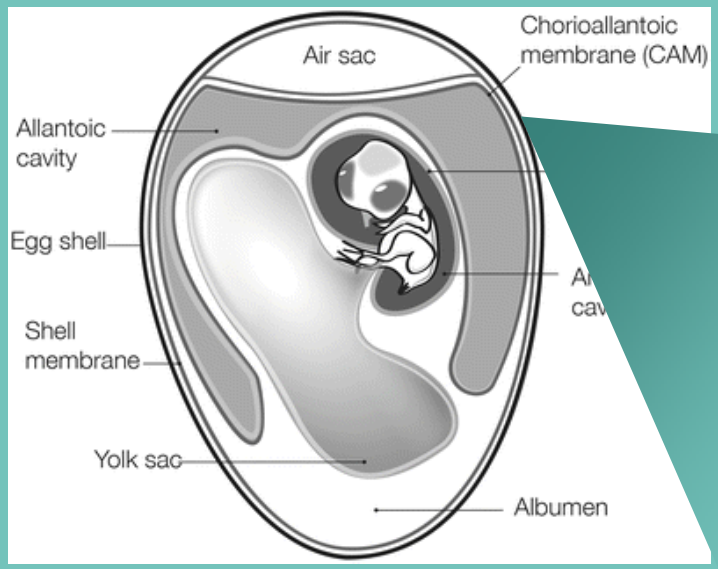
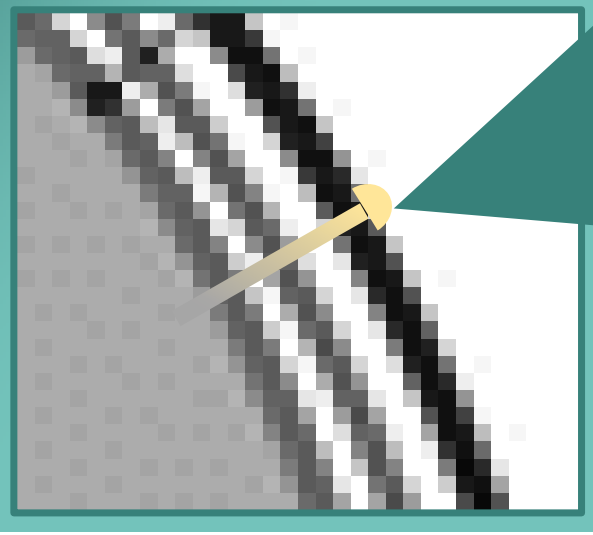
Technology: DNA-analysis of urine from the embryo

- At day 9 there are about 5,000 to 10,000 micro liter urine in the egg
- About 25 micro liter coming out of a laser hole
- PCR detects female DNA





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Technology, part I: liquid uptake

- Allantoic fluid (urine of the embryo)
- Laser hole (0.3mm in diameter)
- Liquid uptake by precise pipetting (negative pressure)
- Individual egg tracing
- Barcode-based assignment

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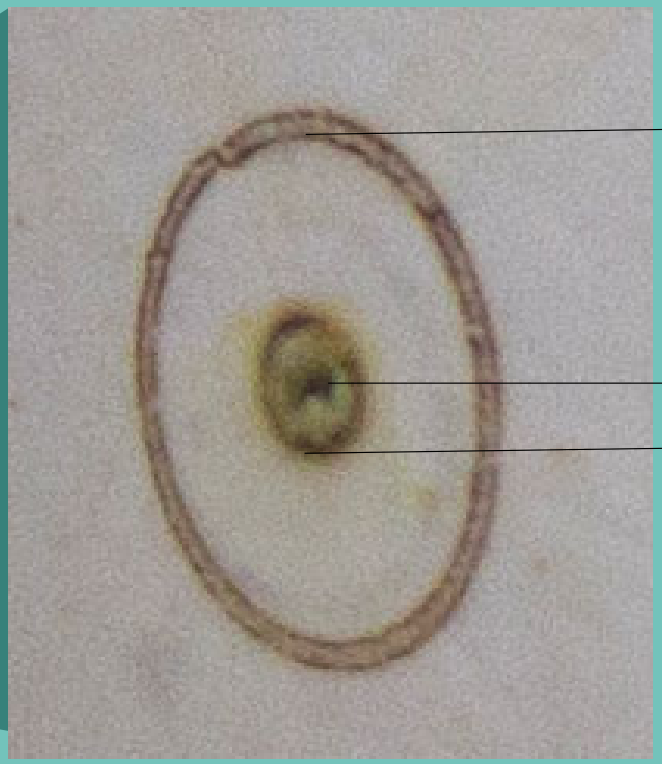
Technology, part I: liquid uptake



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Technology, part I: liquid uptake

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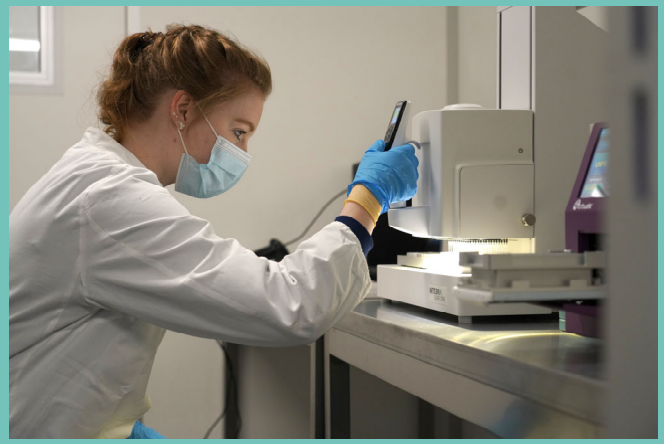
Technology, part II: gene-analysis by PCR

- Propagation of female DNA by PCR
- Optical measurement of DNA (by fluorescence dyes)
- Highly parallel processing of samples
- Running time: about 1 hour
- Ready for day 6:
  - The gender is genetically determined
  - Small amounts of DNA sufficient
  - Yes/no reaction, no dependance on concentration compared to metabolites (e.g. hormones)



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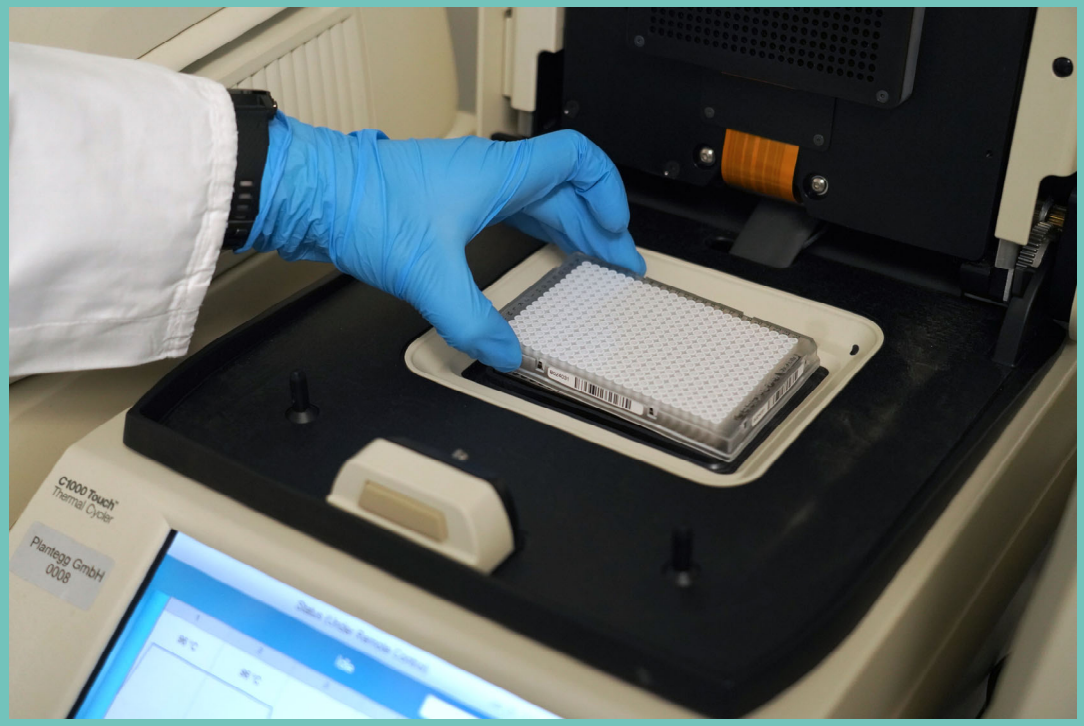
Technology, part II: high throughput DNA-analysis



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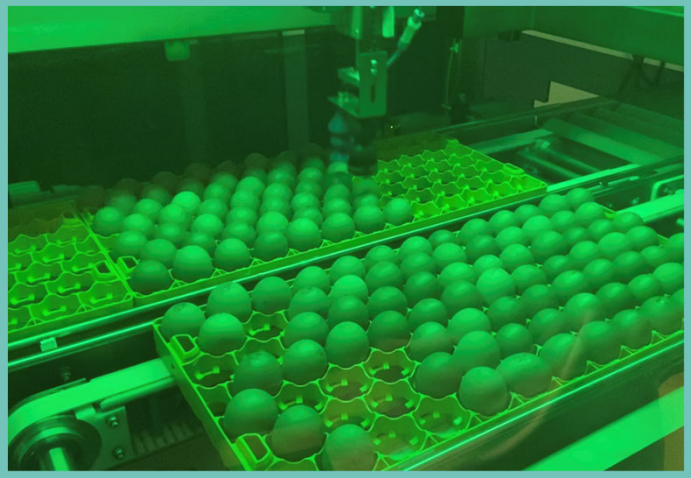
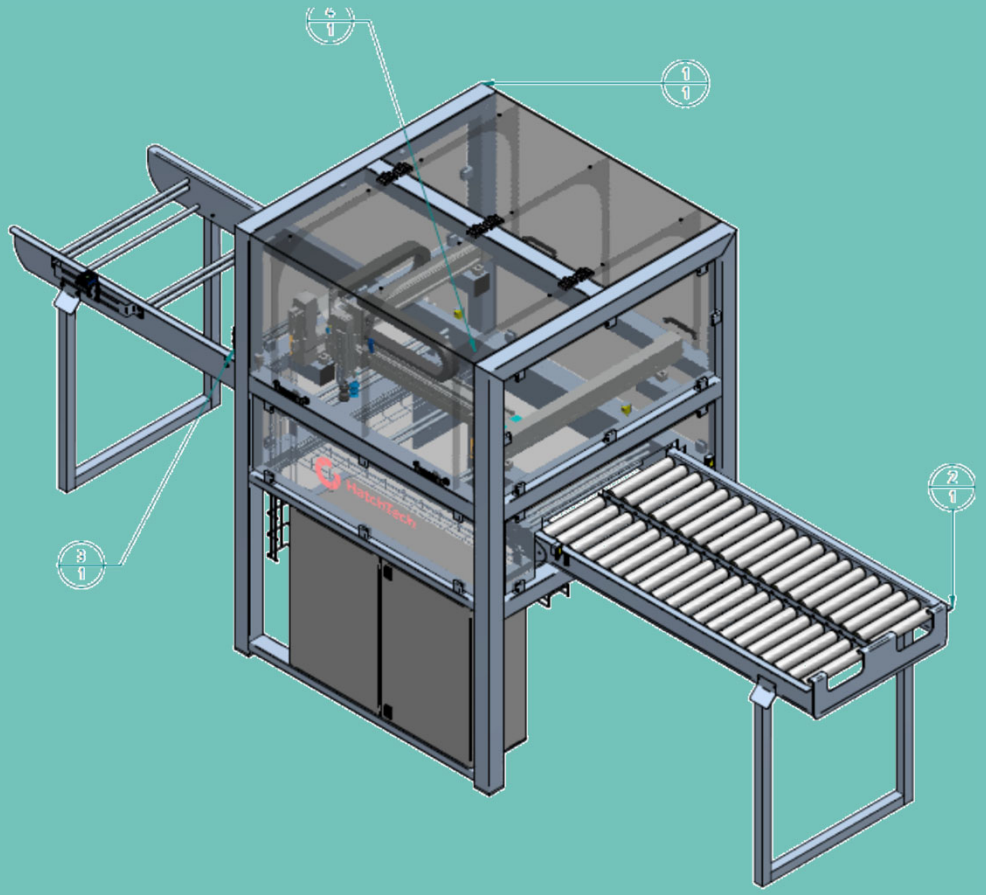
Technology, part II: DNA-analysis in the PCR-Lab

Technology, part III: sorting and 100% refilling





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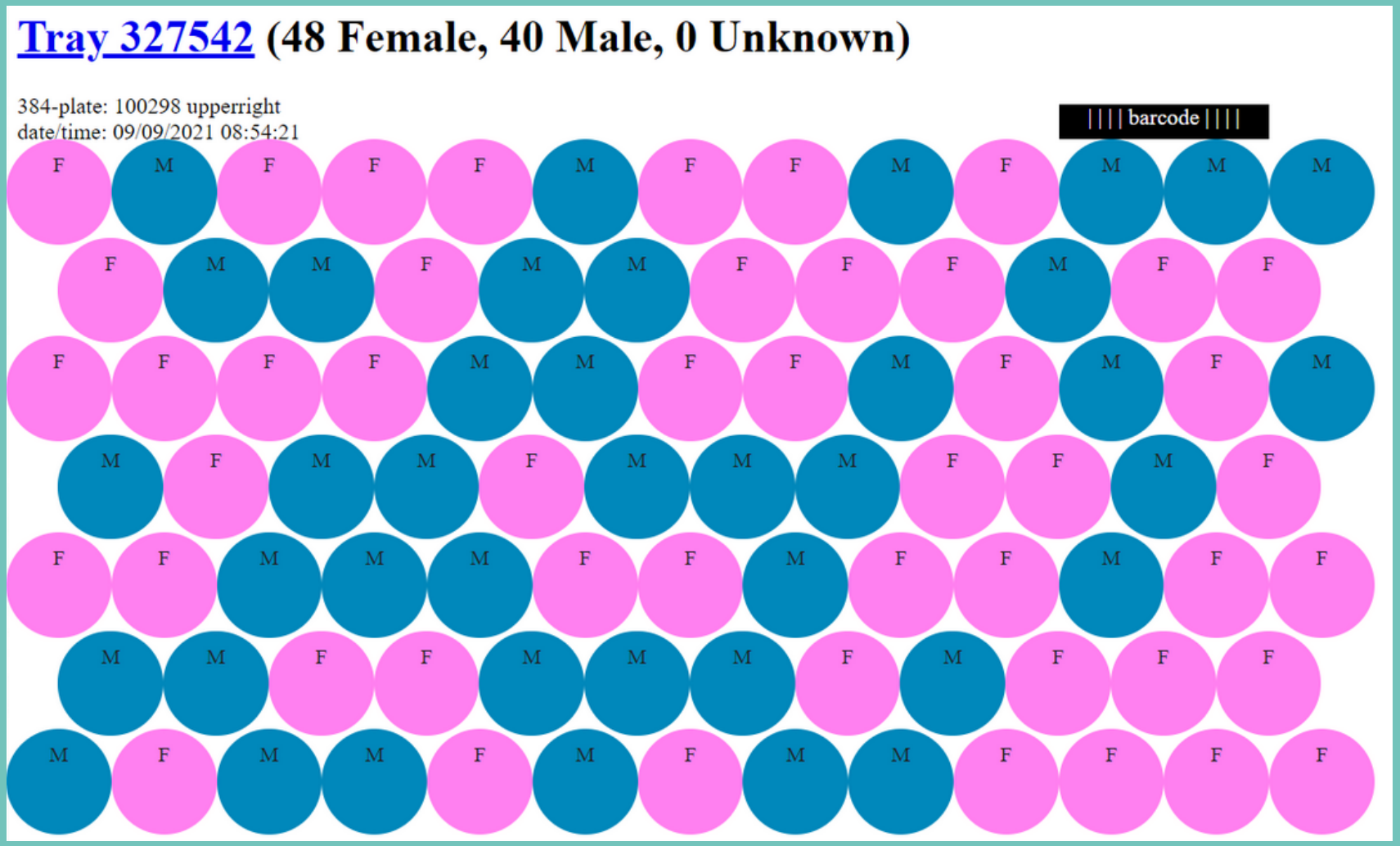
PLANTEGG – results from the hatchery



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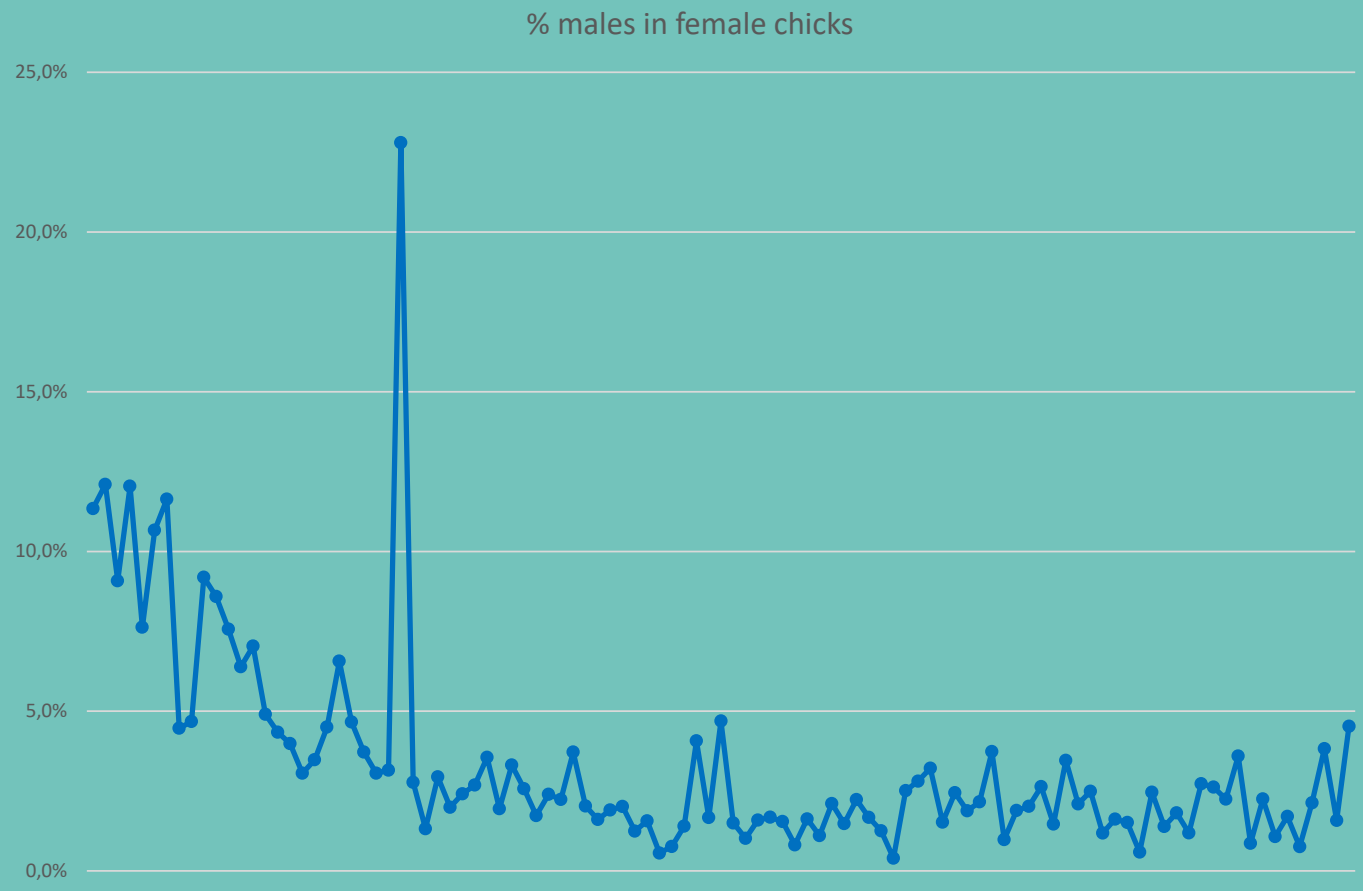
Sexing mistakes



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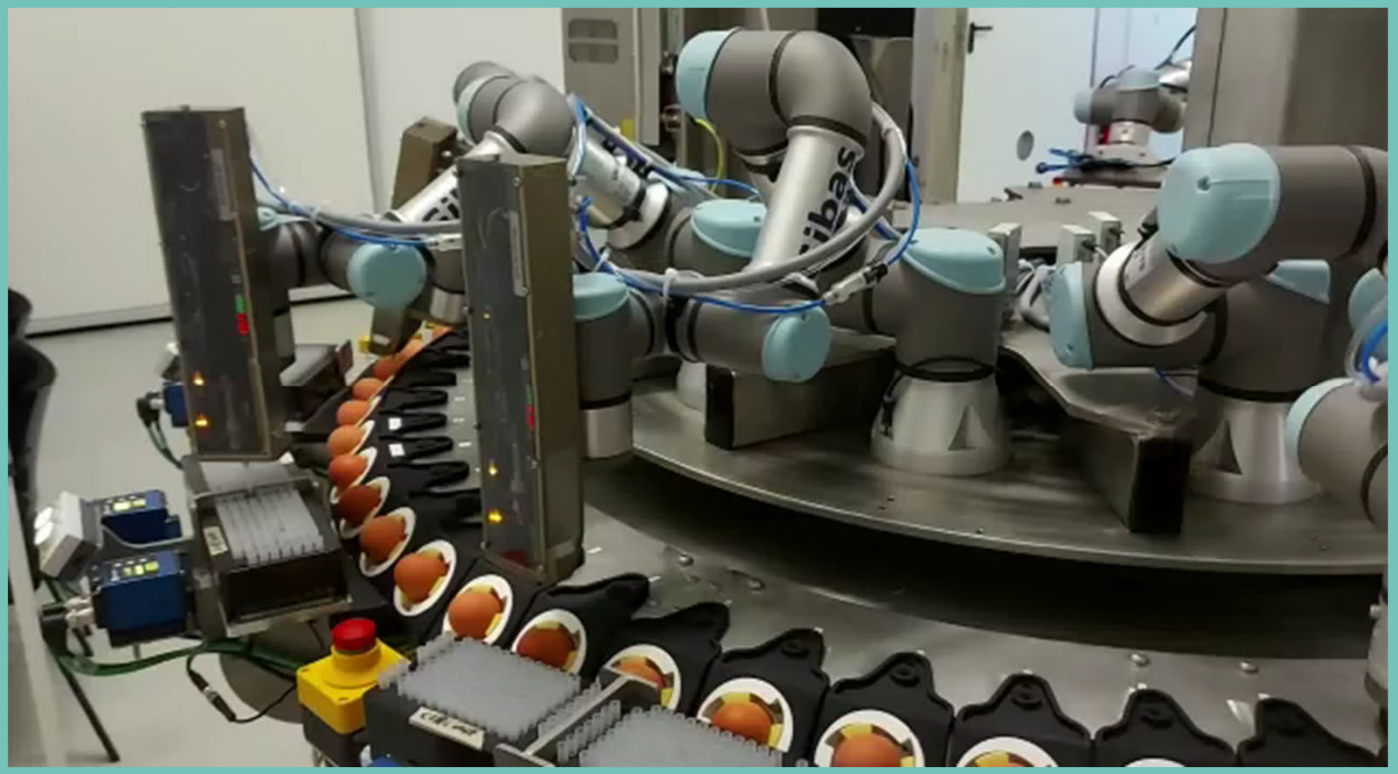
Optimisation of the PLANTegg-Procedure

New Pipetting systems



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Optimisation of the PLANTegg-Procedure

New liquid uptake system

“Circuit”

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Optimisation of the PLANTegg-Procedure

Closure of the hole

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Requirements within the hatchery

- **Good quality of the egg:**
  bad quality eggs lead to bad results

  Recommendation: age of the parent animals 28 - 65 weeks

- **High hygienic standards:**
  PCR-works in a separate room (e.g. Container-Lab) or in an internal clean room within the hatchery

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Requirements within the hatchery

- **Space**
  about 100m^2, to be determined in the hatchery
  about 25m^2 Lab, possibly outside the hatchery

- **Staff**
  about 6 persons, without candling
  education by PLANTEGG

- **Current and air ventilation**
  about 20kW

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PLANTegg – since October 2020 in the hatchery

Statements

Direktion Einkauf:

“Bei Aldis Entscheidung zur Auswahl des Geschlechtsbestimmungsverfahrens spielte neben dem Eiereinkauf auch die Nachhaltigkeit, das Tierwohl und die Corporate Responsibility eine grosse Rolle”.

Jos Eringfeld, Geschäftsführer, Ter Heerdt Kuikens en Hennen B.V. :

„Wir haben uns für diese innovative Methode entschieden, um damit zukunftssicher aufgestellt zu sein. Das PLANTEGG-Verfahren hat sich für uns als sehr erfolgversprechend herausgestellt.“

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High performance of the PLANTegg process

- 98 - 99 % precision
- 3000 eggs per hour with one system
- 24 h continuous production possible
- Since 2020 industrially applied in hatchery
- Fit for the future (PCR=day 6)
- Sustainable (no brother male fattening)

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Thank you for your attention!

Questions?

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[REDACTED]

www.plantegg.de

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