Hatchery Talks

Data management in the hatchery

Before we start …

- Polls
- Questions in chat
- Webinar-replay + hand-out

Contents

- Data collection in the hatchery
- Hatchery calculations
- Recording & storing of data
- Tutorial: Relational data table and Pivot Tables
- Summary

Hatchery Talks

Data collection in the hatchery

Introduction

A hatchery does not only produce day-old chicks!

- In the modern hatchery a lot of data is generated.
- This webinar is about how to record these data such that these can be used for analysis

Every hatch

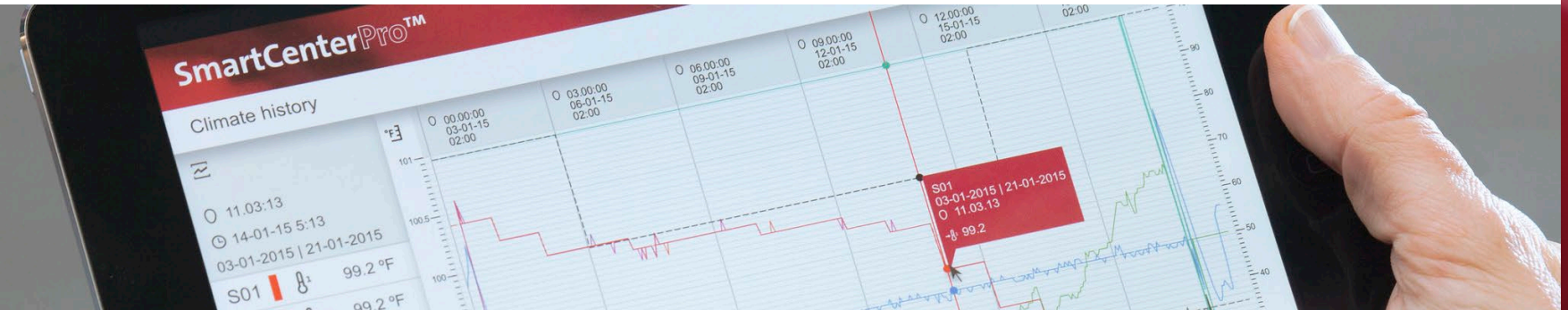
- **Breeder farm:** Flock-ID, age, breed
- **Egg age:** Egg production date or arrival at hatchery
- **Dates:** Setting and hatching
- **Numbers:**
  - Eggs set
  - ‘Clears’ or different categories
  - Chicks (saleable, B-grade, culls)
  - ‘Dead-In-Shell’ = DIS (mostly calculated)

Data-collection in the hatchery

Continuous

Climate data

- Setter and hatcher climate history/cycle
- External climate
- Clean air plenums: temperature, humidity, pressure
- Exhaust plenums: pressure
- Egg storage room and chick despatch room



Less frequent

On sample basis

- Egg quality reports
- Chick quality reports
- Break-out reports
- Egg shell temperatures
- Egg weight loss
- Etc.

External data

Received from customers and data-loggers

- Production results of breeders
- Transport conditions of eggs
- Transport conditions of chicks
- First week mortality at farms
- Etc.

From numbers to percentages

Numbers

- Eggs set
- Removed during candling
  (and perhaps different categories)
- Saleable chicks
  (and perhaps number of culls)

>

Percentages

- Hatchability
- Fertility
- Hatch of Fertile
- Dead in Shell

Poll

Agree or disagree: HOF% can only be calculated in one way; no need to discuss it

Data-collection in the hatchery

Hatchery calculations reliable?

Can we rely on hatchery calculations?
Do we speak the same ‘language’ while calculating?

Hatchery calculations reliable?

Example 1: Hatch of eggs set

A. HOS% = (86/100) * 100 = 86 %

B. HOS% = (87/100) * 100 = 87 %

Eggs set	"Clears"			1st class chicks	2nd class chicks	Total chicks
100	**9**			**86**	**1**	**87**

Hatchery calculations reliable?

Example 2: Hatch of fertile

A. HOF% = 86/(100 – 9) * 100 = 94.5 %

B. … ???

Eggs set	"Clears"			1st class chicks	2nd class chicks	Total chicks
100	**9**			**86**	**1**	**87**

Hatchery calculations reliable?

Example 2: Hatch of fertile

A. HOF% = 86/(100 – 9) * 100 = 94.5 % = **HOT%**

B. HOF% = 86/(100 – 5) * 100 = 90.5 % = **Ho'true'F%**

Eggs set	"Clears"			1st class chicks	2nd class chicks	Total chicks
100	**9**			**86**	**1**	**87**
	Infertile	**Early dead**	**Mid dead**			
	5	**3**	**1**			

Breakout of "clears" required!

Hatchery calculations reliable?

Example 2: Hatch of transfer

Candling accuracy?

A. HOT% = 86/(100 – 9) * 100 = 94.5 %

B. HOT% = 86/(100 – 9 **+1**) * 100 = 95.5 %

Eggs set	"Clears"			1st class chicks	2nd class chicks	Total chicks
100	**9 (+1)**			**86**	**1**	**87**
	Infertile	**Early dead**	**Mid dead**			
	5	**3**	**1 (+1)**			

Hatchery calculations reliable?

Example 3: Dead-in-shell

- 100 eggs set
- 15 removed during candling; 85 transferred
- 74 1st class chicks + 1 cull
- **DIS?** calculated: 100 – 15 – (74 +1) = 10 → = 10%!

Breakout on 10 DIS found in hatcher basket:

- 5 'clears' → 'candling errors'/poor candling
- 1 mid-embryo mortality
- 4 late-embryo mortality → DIS = 4 % (and not 10%)

Hatchery calculations reliable?

Example 4: Calculating average

Setter: 12		Program: AV-2			Hatch date: 10/7/2021	
Flock	Age	#Set	#Clears	%Clears	#Hatched	%Hatched
A	29	300	18	6	240	80
B	42	500	25	5	450	90
C	58	200	20	10	140	70
TOTAL/AVERAGE		1000	63	?	830	?

Hatchery calculations reliable?

Example 4: Calculating average

Setter: 12		Program: AV-2				Hatch date: 10/7/2021		
Flock	Age	#Set	#Clears	%Clears		#Hatched	%Hatched	
A	29	300	18		6	240		80
B	42	500	25		5	450		90
C	58	200	20		10	140		70
TOTAL/AVERAGE		1000	63	6,3?	7,0?	830	83?	80?

Hatchery calculations reliable?

Conclusions

- Be careful when comparing with other hatcheries or standards
- Understand how results are calculated
- Check for calculations errors:
  - Check the input
  - Understand the values and the logic
  - Use ‘blanks’ if in doubt or not correct

Hatchery Talks

Recording & storing data for analysis

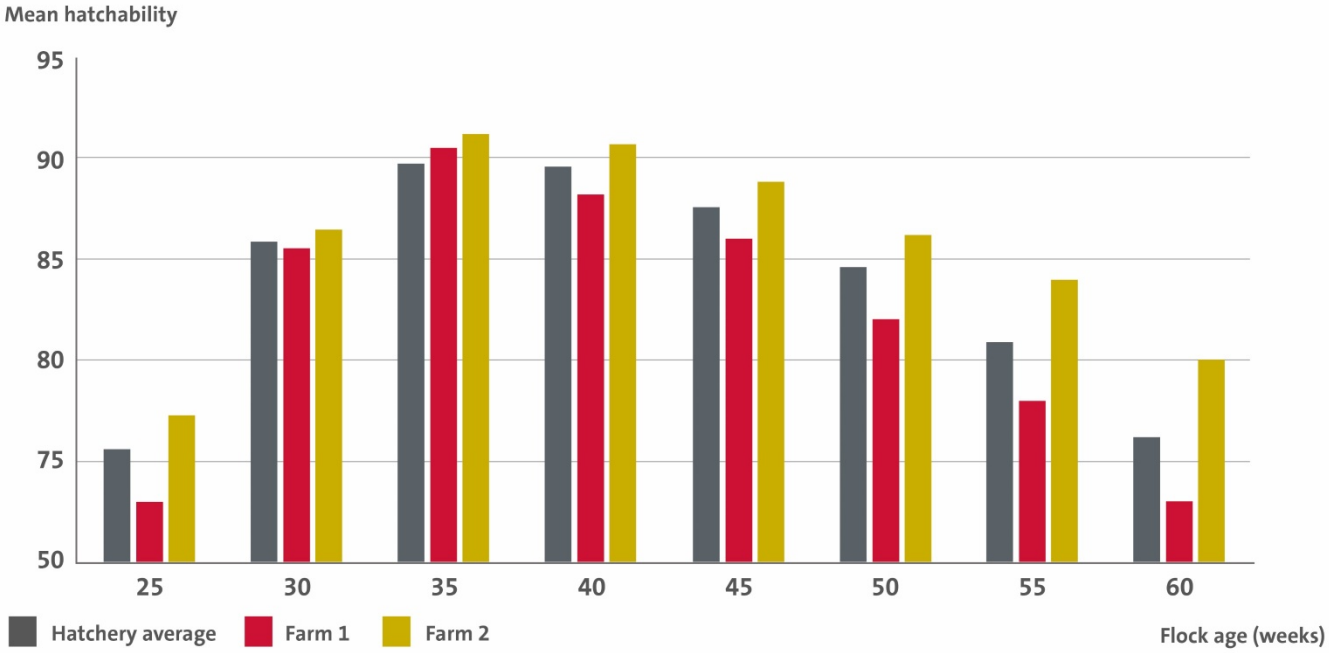
Objective of data-collection

Why to collect data?

- To report to management (daily, weekly, monthly)
- For quality control
- For trouble shooting & later reference in case of issues
- For continuous improvement:
  - To see trends over time in production
  - To compare with standards
  - To compare breeder flocks, hatcheries, incubation profiles and even setters or hatchers
  - To answer questions like “effect egg age?”

Example: continuous improvement

Hatchability of 2 breeder farms compared to overall hatchery average



Poll

How do you ‘Finally’ record/store hatchery data?

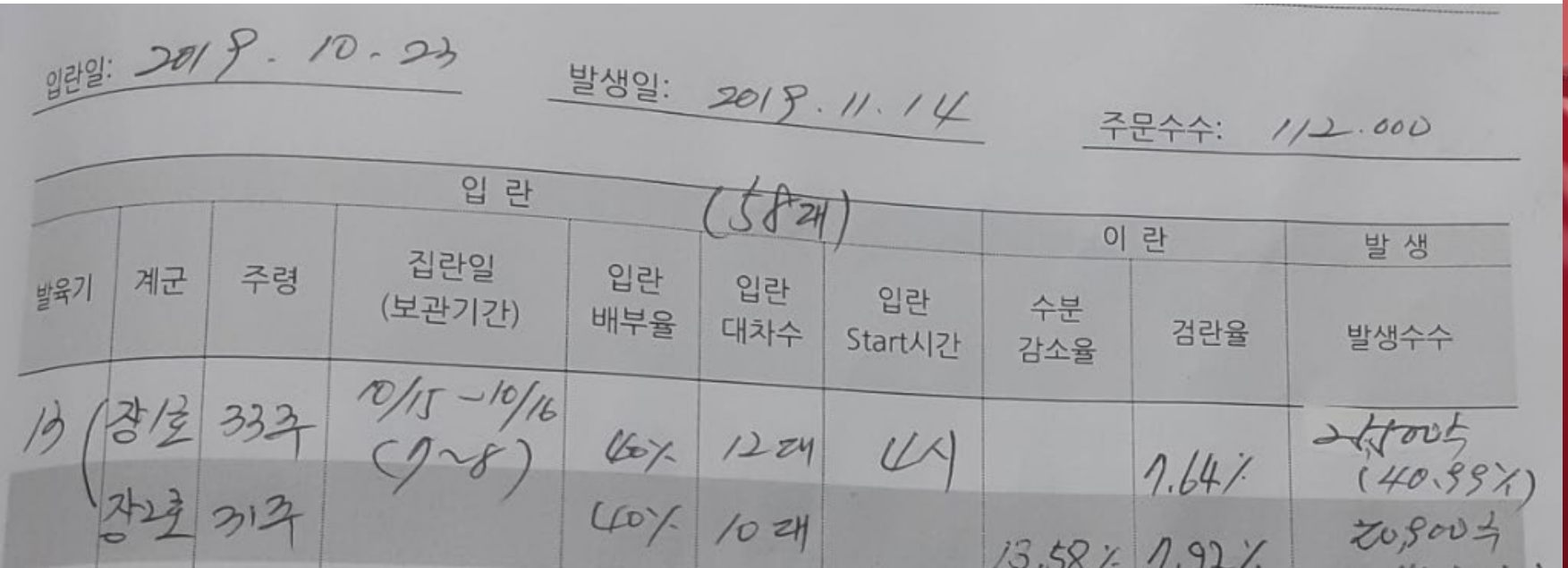
How to record/store data?

On paper…

Recording data for analysis

On paper …

Easy to analyse?



입란일: 2018. 10. 23　　발생일: 2018. 11. 14　　주문수수: 112.000

입 란 (58개)							이 란		발 생
발육기	계군	주령	집란일 (보관기간)	입란 배부율	입란 대차수	입란 Start시간	수분 감소율	검란율	발생수수
19	장1호	33주	10/15 ~ 10/16 (7~8)	60%	12대	11시		7.64%	2,400수 (40.89%)
	장2호	31주		40%	10대		13.58%	7.92%	20,800수

One paper per hatch day …

Easy to analyse?

Recording data for analysis

How to store and analyse data?

On separate spreadsheets per flock …

B22

	A	B	C	D
1	date	27.04.2016 г.		
2	flock/age	Bresto/29 weeks		
3	date of laying	28-29,03,16		
4	fertility	97,83%		25~30седм.
5	number of trays	numer of eggs	%	standard
6	3	486		
7	unfertiled	11	2,26%	6,00%
8	1-5 day mortality	36	7,41%	5,50%
9	6-14 day mortality	18	3,70%	1,00%
10	mort after 14 day	19	4,32%	3,50%
11	malformations	2	0,41%	
12	piping	3	0,62%	1,00%
13	cracked		0,00%	0,50%
14	contaminated	3	0,62%	0,50%
15	total	92	19,01%	18,00%
16			80,99	

D24

	A	B	C	D
1	date	27.04.2016 г.		
2	flock/age	Sushevo 2/38 weeks		
3	date of laying	28-30,03,16		
4	fertility	97,50%		31~45 weeks
5	number of trays	numer of eggs	%	standard
6	3	486		
7	unfertiled	7	1,44%	2,50%
8	1-5 day mortality	18	3,70%	3,50%
9	6-14 day mortality	10	2,06%	0,50%
10	mort after 14 day	11	2,26%	2,50%
11	malformations		0,00%	
12	piping	3	0,62%	0,50%
13	cracked	4	0,82%	0,50%
14	contaminated	1	0,21%	0,50%
15	total	54	11,11%	10,50%
16			88,89	

Recording data for analysis

In separate spreadsheets …

Easy to analyse?

B22

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15	total	54	11,11%	10,50%
16			88,89	

Recording data for analysis

Batch report in spreadsheet

Good for daily reporting; not for analysis!

BATCH REPORT

BATCH	B1

SETTING DATE	29/4/2021
CANDLING DATE	5-9-2021
HATCH DATE	20/5/2021

setter	flock	trolly num	total trays num	total trays house	total eggs nest	total eggs FE	storage nest	storage FE	candling nest	candling FE	HATCH	TROLLY NUM	total trays num	total trays house	total eggs nest	total eggs FE	Total hatching nest	Total hatching FE	% nest	% FE	HOF	culls nest	culls FE	%	Sellable
5	R1	1	22	H3	3300		4D		94,2			1	22		3300		2890		87,6%		93,0%	45		1,6%	2845
		2	22	H9	3300		4D		94,1			2	22		3300		2866		86,8%		92,3%	66		2,3%	2800
		3	22	H2	3300		4D		93,2			3	22		3300		2867		86,9%		93,2%	67		2,3%	2800
		4	22	H8	3300		4D		92,6			4	22		3300		2836		85,9%		92,8%	65		2,3%	2771
																									0
	R1	5	21	H1	3150		4D		93			5	21		3150		2689		85,4%		91,8%	59		2,2%	2630
		6	21	H7	3150		4D		93,8			6	21		3150		2778		88,2%		94,0%	58		2,1%	2720
		7	21	H10	3150		4D		92,4			7	21		3150		2780		88,3%		95,5%	50		1,8%	2730
		8	21	H5	3150		4D		93,4			8	21		3150		2695		85,6%		91,6%	75		2,8%	2620
																									0
6	R1	9	21	H6	3150		3 : 4 D		94,5			9	21		3150		2760		87,6%		92,7%	60		2,2%	2700
		10	21	H4	3150		3 : 4 D		94			10	21		3150		2733		86,8%		92,3%	43		1,6%	2690
		11	21		3150		3 : 4 D		93,5			11	21		3150		2757		87,5%		93,6%	37		1,3%	2720
		12	21		3150		3D		92,5			12	21		3150		2752		87,4%		94,4%	62		2,3%	2690
																									0
	R1	13	21		3150		3D		93,7			13	21		3150		2744		87,1%		93,0%	80		2,9%	2664
		14	21	FE		3150		4D		90,5		14		21		3150		2635		83,7%	92,4%		75	2,8%	2560
		15	21	FE		3150		4D		89,5		15		21		3150		2630		83,5%	93,3%		70	2,7%	2560
		16	21	FE		3150		3 :4 D		91,4		16		21		3150		2635		83,7%	91,5%		75	2,8%	2560
																									0
TOTAL			340		41550	9450	2 : 3 D	2 : 3 D	93,50%	90,50%			340	63	41550	9450	36147	7900	87,0%	83,6%	93,0%	767	220	2,2%	43060
					51000												44047								

Recording data for analysis

BATCH REPORT

BATCH	B1

SETTING DATE	29/4/2021
CANDLING DATE	5-9-2021
HATCH DATE	20/5/2021

Batch report for 1 specific hatch day

setter	flock	trolly num	total trays		total eggs		storage		candling		HATCH	TROLLY NUM	total trays		total eggs		Total hatching		%		HOF	culls		%	Sellable
			num	house	nest	FE	nest	FE	nest	FE			num	house	nest	FE	nest	FE	nest	FE		nest	FE		
5	R1	1	22	H3	3300		4D		94,2			1	22		3300		2890		87,6%		93,0%	45		1,6%	2845
		2	22	H9	3300		4D		94,1			2	22		3300		2866		86,8%		92,3%	66		2,3%	2800
		3	22	H2	3300		4D		93,2			3	22		3300		2867		86,9%		93,2%	67		2,3%	2800
		4	22	H8	3300		4D		92,6			4	22		3300		2836		85,9%		92,8%	65		2,3%	2771
																									0
	R1	5	21	H1	3150		4D		93			5	21		3150		2689		85,4%		91,8%	59		2,2%	2630
		6	21	H7	3150		4D		93,8			6	21		3150		2778		88,2%		94,0%	58		2,1%	2720
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6	R1	9	21	H6	3150		3 : 4 D		94,5			9	21		3150		2760		87,6%		92,7%	60		2,2%	2700
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		14	21	FE		3150										3150		2635		83,7%	92,4%		75	2,8%	2560
		15	21	FE		3150										3150		2630		83,5%	93,3%		70	2,7%	2560
		16	21	FE		3150		3 : 4 D		91,4		16		21		3150		2635		83,7%	91,5%		75	2,8%	2560
																									0
TOTAL			340		41550	9450	2 : 3 D	2 : 3 D	93,50%	90,50%			340	63	41550	9450	36147	7900	87,0%	83,6%	93,0%	767	220	2,2%	43060
					51000												44047								

Total numbers & calculations

Recording data for analysis

Only flock ID is known; not flock age

BATCH REPORT

SETTING DATE	29/4/2021
CANDLING DATE	5-9-2021
HATCH DATE	20/5/2021

Batch report for 1 specific hatch day

setter	flock	trolly num	total trays num	total trays house	total eggs nest	total eggs FE	storage nest	storage FE	candling nest	candling FE	HATCH	TROLLY NUM	total trays num	total trays house	total eggs nest	total eggs FE	Total hatching nest	Total hatching FE	% nest	% FE	HOF	culls nest	culls FE	%	Sellable
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		7	21	H10	3150		4D		92,4			7	21		3150		2780		88,3%		95,5%	50		1,8%	2730
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																									0
6	R1	9	21	H6	3150		3 : 4 D		94,5			9	21		3150		2760		87,6%		92,7%	60		2,2%	2700
		10	21	H4	3150		3 : 4 D		94			10	21		3150		2733		86,8%		92,3%	43		1,6%	2690
		11	21		3150		3 : 4 D		93,5			11	21		3150		2757		87,5%		93,6%	37		1,3%	2720
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		16	21	FE		3150		3 : 4 D		91,4		16		21		3150		2635		83,7%	91,5%		75	2,8%	2560
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					51000												44047								

Total numbers & calculations

Recording data for analysis

Batch report in SmartCenterPro™

Good for daily reporting; not for analysis!

SmartCenterPro™

Cycle report Carlson.02

Receipt date 09-02-2015, setting date 13-02-2015

Supplier	Carlson	**Fetus normal**	90.6%
Breeder flock	02	**Chick handling date**	06-03-2015
Breed	Ross 308	**Chicks counted**	50,688
Receipt date	09-02-2015	**Mean chick weight**	43 gram
Age	40 wk	**CV day old chicks**	6.2
Storage time	4 days	**Hatch of fertile**	92.6%
Mean egg weight	63.8	**Hatch of eggs set**	83.9%
CV hatching eggs	5.54	**Spray vaccination**	IB H120
Setting date	13-02-2015	**Spray vaccination lot nr.**	AZD120873
Transfer date	03-03-2015	**Farm**	Johnson, Newman, Jefferson

Track and trace

Breeder flock	**Setting**	**Hatching**	**Chick handling**	**Farms**
Receipt date	Egg setting date	Transfer date	Chick handling date	Delivery date
09-02-2015	13-02-2015	03-03-2015	06-03-2015	06-03-2015
			SC1	

Hatchery Talks

Tutorial: Relational data table & analysis by Pivot Tables in Excel

Tutorial

Batch report in spreadsheet

Good for daily reporting; not for analysis!

Setter: 12		Program: AV-2			Hatch date: 10/7/2021	
Flock	Age	#Set	#Clears	%Clears	#Hatched	%Hatched
A	29	300	18	6	240	80
B	42	500	25	5	450	90
C	58	200	20	10	140	70
TOTAL/AVERAGE		1000	63	6,3	830	83

Tutorial

Batch report in Excel

Good for daily reporting; not for analysis!

	A	B	C	D	E	F	G
1		Batch report: PRIME HATCHEY - KINGSDALE, NOWHERLAND					
2	setter: 12		program: AV-2			hatch date: 10/7/2021	
3	flock	age	#set	#clears	%clears	#hatched	%hatched
4	A	29	300	18	6	240	80
5	B	42	500	25	5	450	90
6	C	58	200	20	10	140	70
7		TOTAL	1000	63	6,3	830	83

Tutorial

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3	flock	age	#set	#clears	%clears	#hatched	%hatched
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5	B	42	500	25	5	450	90
6	C	58	200	20	10	140	70
7		TOTAL	1000	63	6,3	830	83
8							
9							
10		Batch report: PRIME HATCHEY - KINGSDALE, NOWHERLAND					
11	setter: 6		program: AV-2			hatch date: 17/7/2021	
12	flock	age	#set	#clears	%clears	#hatched	%hatched
13	A	30	300	15	5	258	86
14	B	43	500	25	5	445	89
15	C	59	200	26	13	120	60
16		TOTAL	1000	66	6,6	823	82,3

Tutorial

Relational data table

From daily report to relational data table

	A	B	C	D	E	F	G
1		Batch report: PRIME HATCHEY - KINGSDALE, NOWHERLAND					
2	setter: 12		program: AV-2			hatch date: 10/7/2021	
3	flock	age	#set	#clears	%clears	#hatched	%hatched
4	A	29	300	18	6	240	80
5	B	42	500	25	5	450	90
6	C	58	200	20	10	140	70
7		TOTAL	1000	63	6,3	830	83

	A	B	C	D	E	F	G	H	I	J
1					Batch report: PRIME HATCHEY - KINGSDALE, NOWHERLAND					
2										
3	hatch date	setter	program	flock	age	#set	#clears	%clears	#hatched	%hatched
4	10-jul	12	AV-2	A	29	300	18	6	240	80
5	10-jul	12	AV-2	B	42	500	25	5	450	90
6	10-jul	12	AV-2	C	58	200	20	10	140	70
7										

Tutorial

Relational data table

From daily report to relational data table

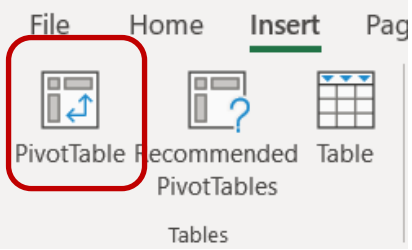
	A	B	C	D	E	F	G	H	I	J
1			Relational data table: PRIME HATCHERY - KINGSDALE, NOWHERELAND							
2	hatch date	setter	program	flock	age	#set	#clears	%clears	#hatched	%hatched
3	10-jul	12	AV-2	A	29	300	18	6	240	80
4	10-jul	12	AV-2	B	42	500	25	5	450	90
5	10-jul	12	AV-2	C	58	200	20	10	140	70
6	17-jul	6	AV-2	A	30	300	15	5	258	86
7	17-jul	6	AV-2	B	43	500	25	5	445	89
8	17-jul	6	AV-2	C	59	200	26	13	120	60
9	24-jul	3	TEST	A	31					
10										

… and so on for ever-and-ever!

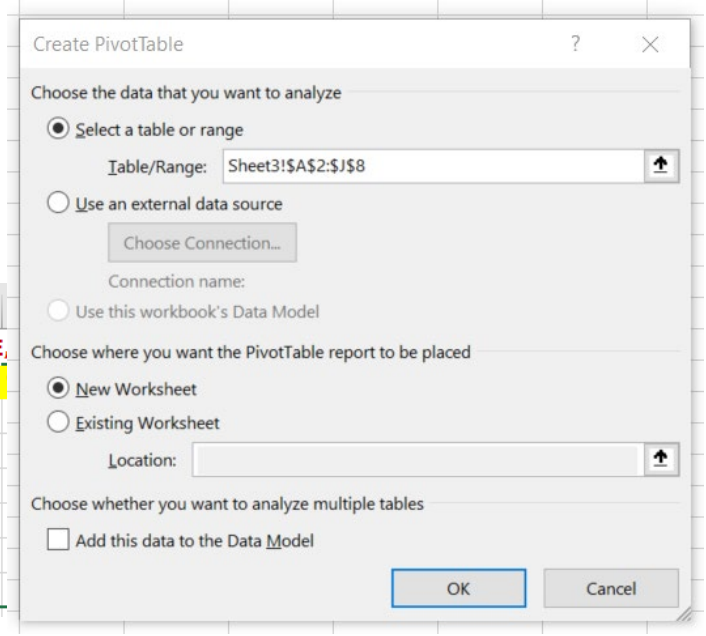
Tutorial

A good basis for analysis

For example bij “Pivot Table” in Excel



	A	B	C	D	E	F	G
1			Relational data table: PRIME HATCHERY - KINGSDALE,				
2	hatch date	setter	program	flock	age	#set	#clears
3	10-jul	12	AV-2	A	29	300	18
4	10-jul	12	AV-2	B	42	500	25
5	10-jul	12	AV-2	C	58	200	20
6	17-jul	6	AV-2	A	30	300	15
7	17-jul	6	AV-2	B	43	500	25
8	17-jul	6	AV-2	C	59	200	26

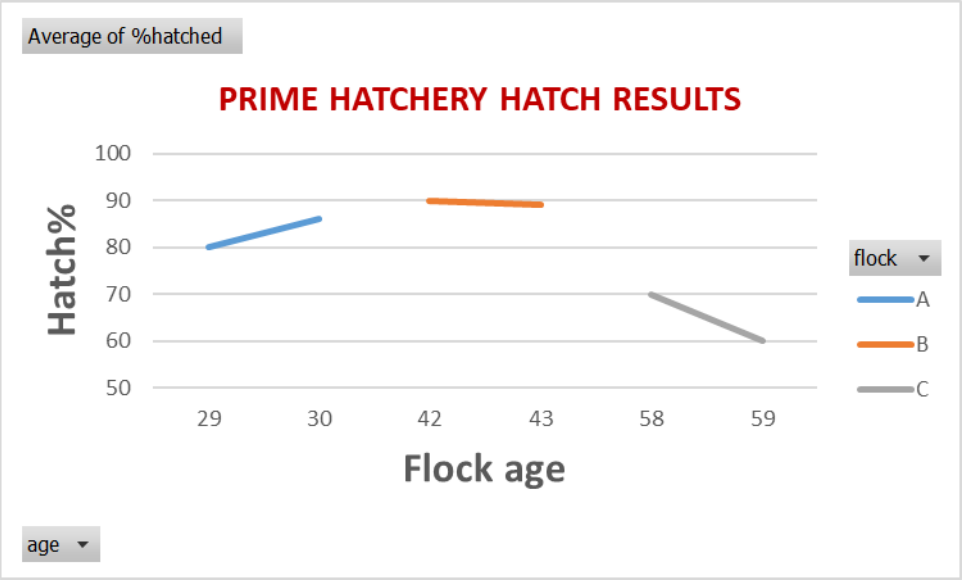


Tutorial

Pivot Table in Excel

… easy to make all kinds of graphs

(per flock, per year, per program, per setter etc.)

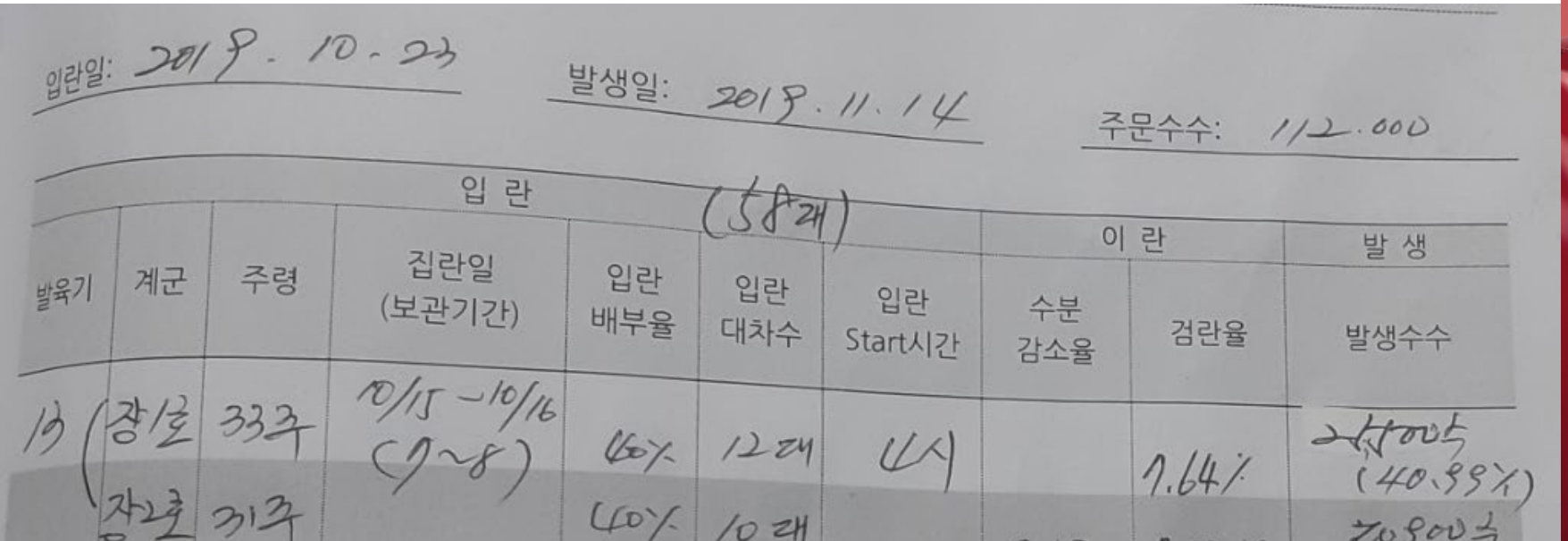


Hatchery Talks

Summary

Summary

Records start on paper …



입란일: 2018. 10. 23　　발생일: 2018. 11. 14　　주문수수: 112.000

입 란 (58개)							이 란		발 생
발육기	계군	주령	집란일 (보관기간)	입란 배부율	입란 대차수	입란 Start시간	수분 감소율	검란율	발생수수
19	장1호	33주	10/15 ~ 10/16 (7~8)	60%	12대	11시		7.64%	24,000수 (40.99%)
	장2호	31주		40%	10대				20,800수

Summary

… added to relational database

	A	B	C	D	E	F	G	H
1								
2	발육 profile	발육기	계군	주령	난중	보관 기간 (짧)	보관 기간 (긴)	입란일시
94	layer brown sea level	9	2017-06-08	60		1	5	18-8-2 2:00
95	layer brown sea level	4	2017-06-08	60		2	8	18-8-5 20:00
96	layer brown sea level	5	2018-01-24	27	55.5	3	7	18-8-5 21:00
97	layer brown sea level	6	2018-02-03	26	55.3	4	7	18-8-5 22:00
98	layer brown sea level	13	2017-09-06	48	62.2	6	9	18-8-8 21:00
99	layer brown sea level	14	2017-09-06	48	62.2	2	7	18-8-8 23:00

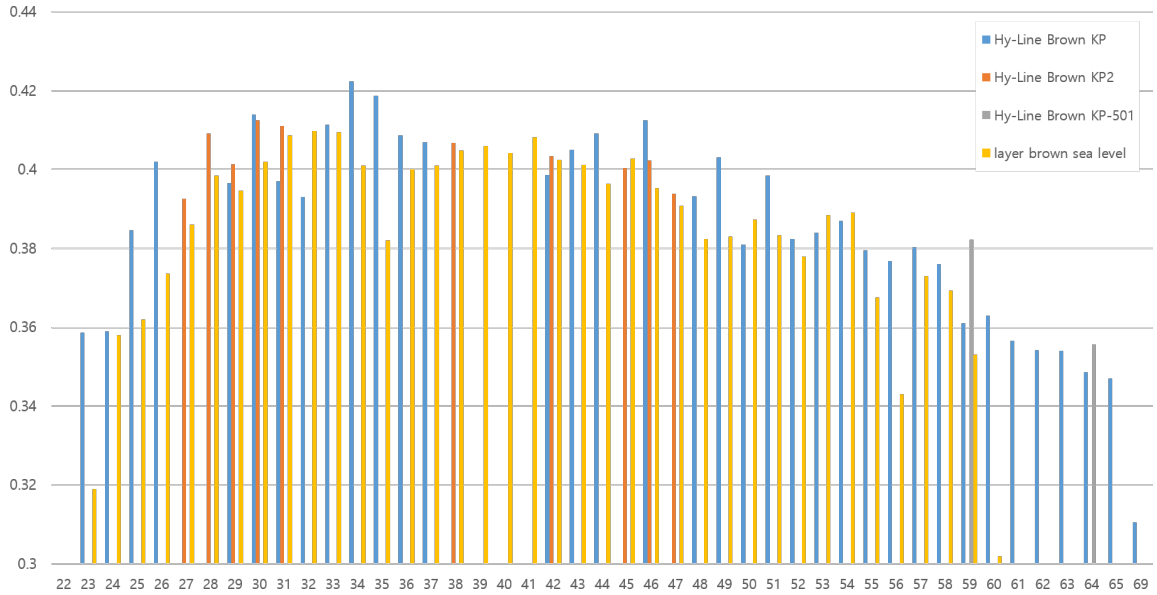
O310 =N310+0.4

| | A | B | C | D | E | F | G | | | | | | | |

Summary

… and analyzed by Pivot Tables

For example: Hatchability by flock age for 4 different setter programs

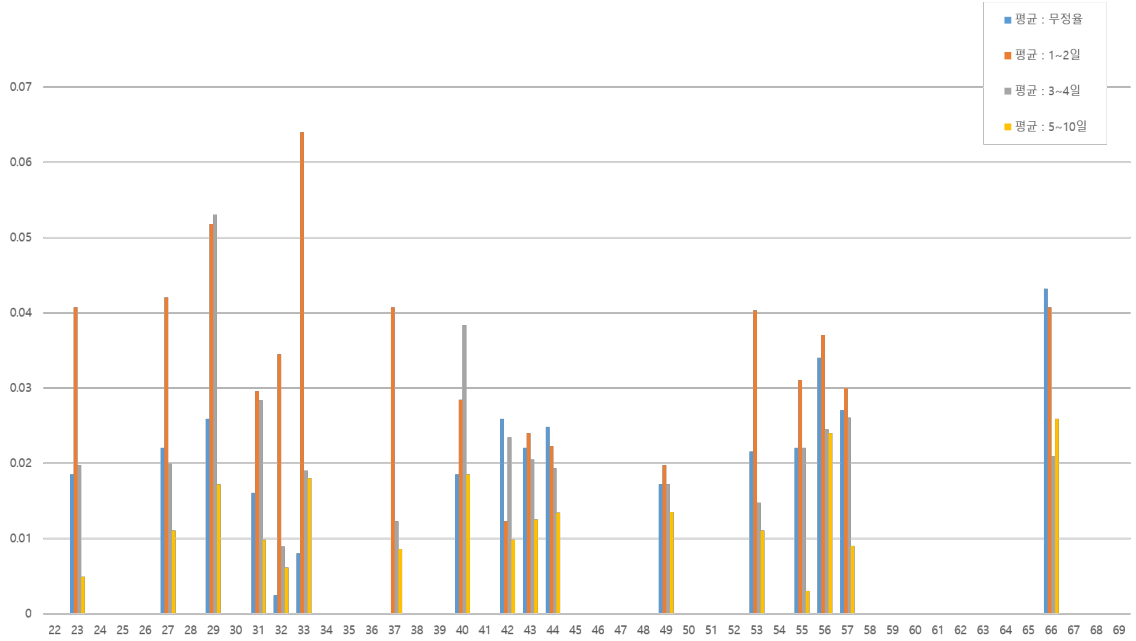


Summary

Pivot tables in practice

Used to analyse a variety of issues

Egg break-out results by flock age → “membrane mortality” high



Poll

Do you have people at your company who are able to link all kind of data tables together for deeper analysis?

Hatchery Talks

Advanced data management

Super-connecting your hatchery data

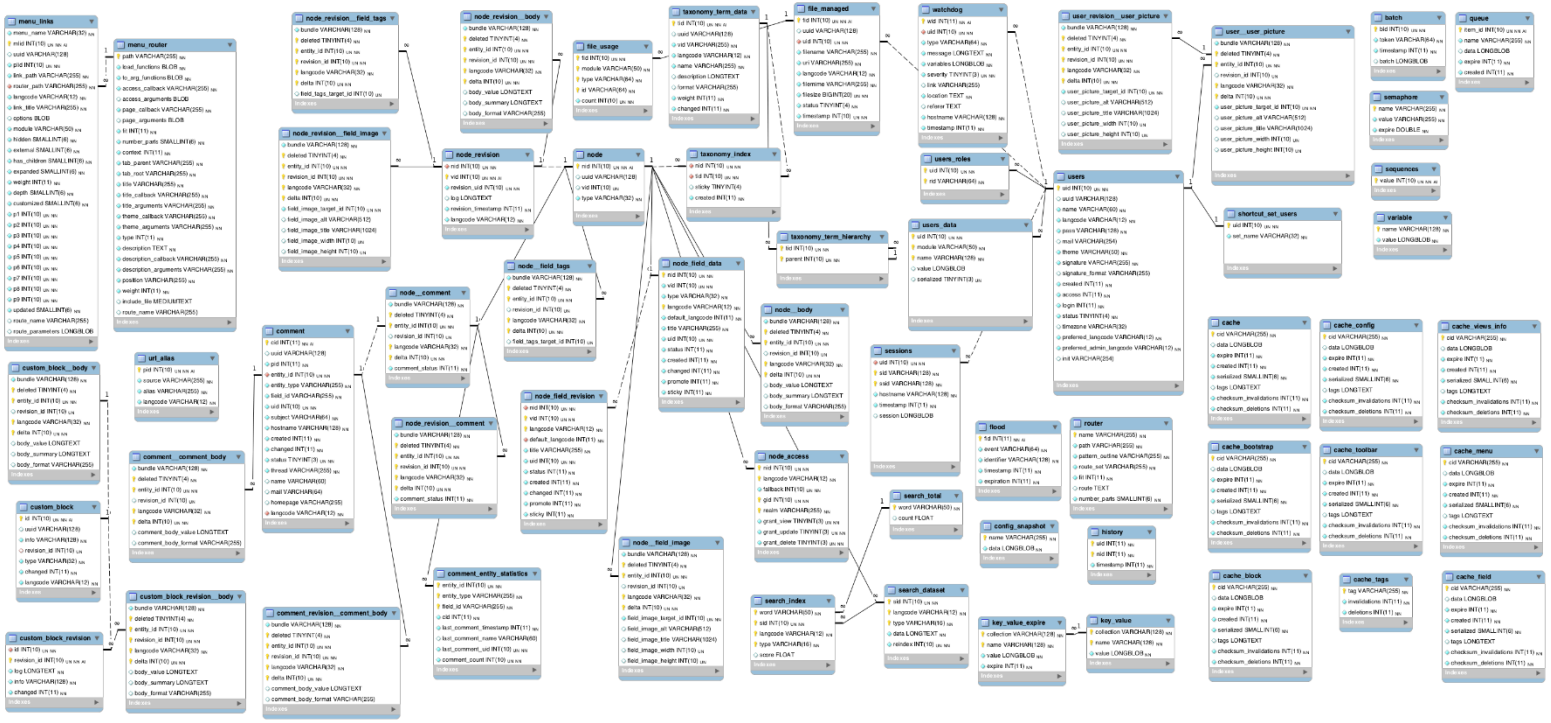
Datawarehouse with web-based reporting tool

Super-connecting hatchery data

- Many data sources can be connected:
  - SmartCenterPro™
  - Excel
  - ERP system (CSV, XML)
  - Entered via an (mobile) app
  - And much more
- User friendly web-based reporting tool
- Dashboards with many customer specific possibilities
- Advice from Pas Reform hatchery and service specialist

Advanced data management

Datawarehouse



Advanced data management

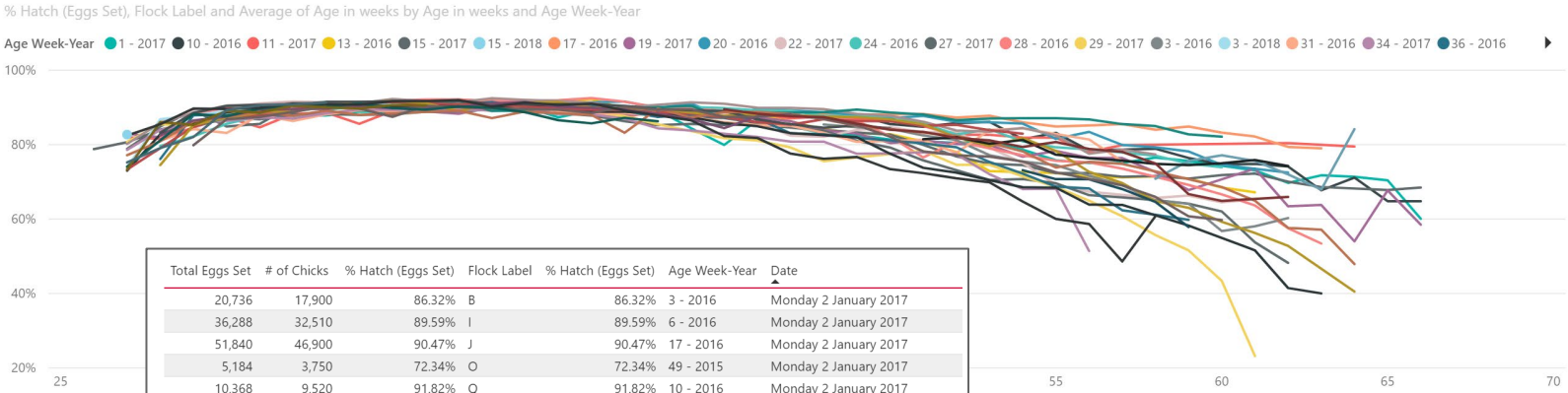
Hatchability by flock and age

Flock Label: All

Breed: All

84.76%

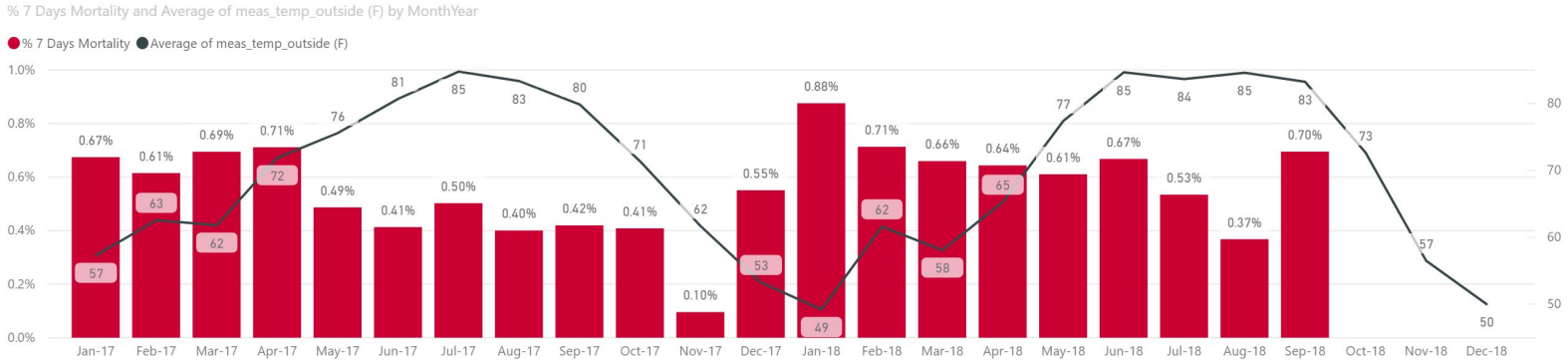
% Hatch (Eggs Set)



Total Eggs Set	# of Chicks	% Hatch (Eggs Set)	Flock Label	% Hatch (Eggs Set)	Age Week-Year	Date
20,736	17,900	86.32%	B	86.32%	3 - 2016	Monday 2 January 2017
36,288	32,510	89.59%	I	89.59%	6 - 2016	Monday 2 January 2017
51,840	46,900	90.47%	J	90.47%	17 - 2016	Monday 2 January 2017
5,184	3,750	72.34%	O	72.34%	49 - 2015	Monday 2 January 2017
10,368	9,520	91.82%	Q	91.82%	10 - 2016	Monday 2 January 2017
88,128	80,900	91.80%	A	91.80%	13 - 2016	Tuesday 3 January 2017
51,840	47,300	91.24%	F	91.24%	10 - 2016	Tuesday 3 January 2017
5,184	4,600	88.73%	J	88.73%	17 - 2016	Tuesday 3 January 2017
41,472	28,400	68.48%	M	68.48%	45 - 2015	Tuesday 3 January 2017
20,736	15,500	74.75%	N	74.75%	49 - 2015	Tuesday 3 January 2017
20,736	15,200	73.30%	O	73.30%	49 - 2015	Tuesday 3 January 2017
20,736	15,900	76.68%	P	76.68%	52 - 2015	Tuesday 3 January 2017
65,889,604	**55,845,421**	**84.76%**		**84.76%**		

Advanced data management

Hatchability & mortality by season



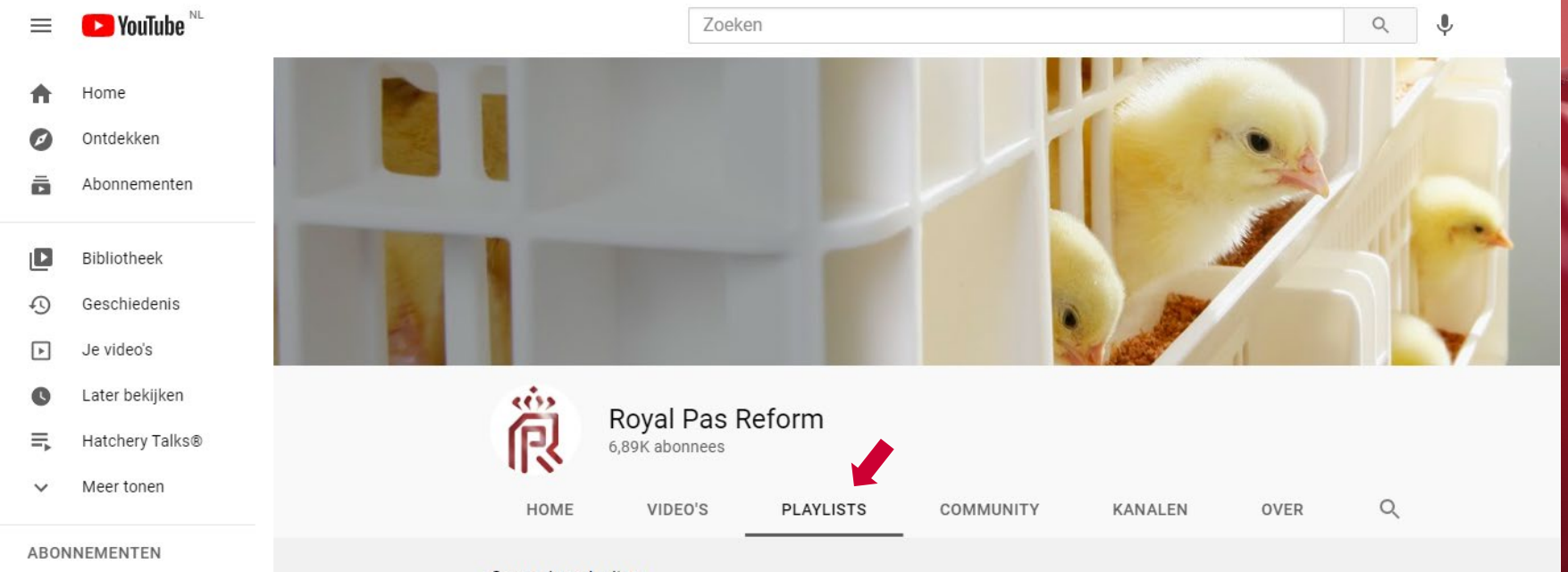
Advanced data management

Building a data table

Whitepaper - Efficient data management in the hatchery

Advanced data management

Building a solid base for efficient data management



Thanks for watching!

- **Webinar-replay + hand-out**
- **Knowledge section at our website**

See you at our next webinar!

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