

講者介紹 Mr. Kent Stagsted Nielsen



Head of sales Agrisys 銷售業務主管
45歲 · Danish 丹麥人

自1990開始加入畜牧行業
共12年豬場工作經驗
之前在種豬場與肉豬場工作

Started my carrier in agriculture 1990
12 years dedicated to pigs from 1995-2006
Production farms and breeding farms

2006年開始專注於技術服務與專案計畫銷售
Dedicated to technical solution and project sales
since 2006

- 牧場新建規劃設計 Dimensioning and layout of pig farms
- 欄位規劃 Penning
- 智能餵飼輸送系統 Smart feeding systems
- 自動墊料輸送 Straw systems
- 個體電子智能餵飼 ESF



Company introduction

Agrisys 公司介紹



波克生醫股份有限公司





We increase the efficiency of the producers, increase sustainability and the welfare of the animals by using IoT

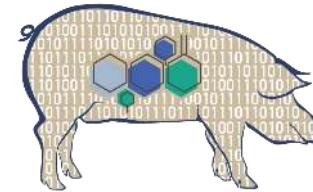


The idea...

是專注於未來蛋白質產業，而創建的專業公司，
專注於：

...was to create a specialist company for the future protein production-
focusing on:

- 群養及動物福利
- 提升企業在消費者中的形象
- 最大化生產者的效率
- Group housing and Animal welfare
- Increase business' image to the consumers
- Optimize the producer' s efficiency



Solution program – 歷史historical



從餵飼系統的專業公司開始 - 專注於群養及動物福利

Starting as this specialist company in feeding systems – and focusing on Group housing & animal welfare the natural choice was...

Nedap 2009 年 ESF 作為他們唯一的產品，之後增加：

- 電子母豬飼餵
- 肉豬通道 (進行重量分類)
- 自動化分娩期餵飼
- 豬隻性狀測試

Nedap (With ESF as their only product in 2009 – later they added)

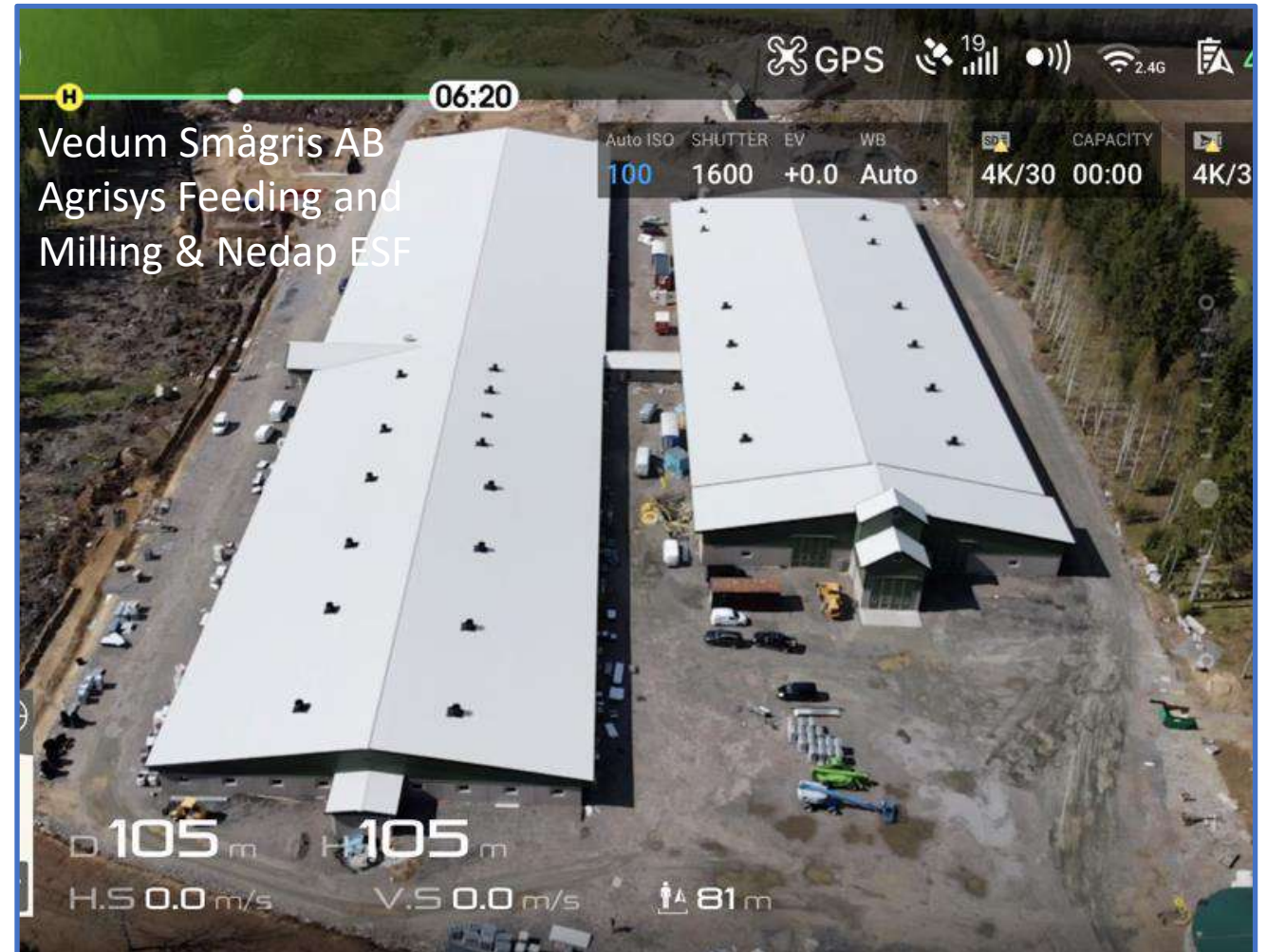
- Electronic Sow Feeding
- Pork Tuner (weight sorting on finishers)
- Automized Farrowing Feeding
- Pig Performance Testing

我們從丹麥及德國不同的供應商，採購飼料供應系統和碾磨系統

- 傳統的乾式飼料和螺旋輸送系統
- 部分和多相進料
- 磨料系統

From different suppliers from DK and Germany we sourced Feed supply systems and milling system

- Classic dry feeding and auger systems
- Portion and multi phase feeding
- Milling Systems



Solution program – 現在today



我們忠於之前的願景，但將它升級為—為**蛋白質自動化**為目的的公司

We are true to the old vision – but we upgraded it with a vision about making the optimal company for ...**Protein Automation**

因此，我們質疑並挑戰自己：如何將我們的願景變為現實，如何進入市場。結論：沒有人願意或可以為我們做這件事

So, we questioned and challenged ourselves how to translate our vision into reality – how to reach this market. Conclusion: No-one will or could do it for us

我們收購了一個網路公司團隊，並開發了一家成熟的網路公司作為子公司—大幅擴展業務，甚至還打進德國市場

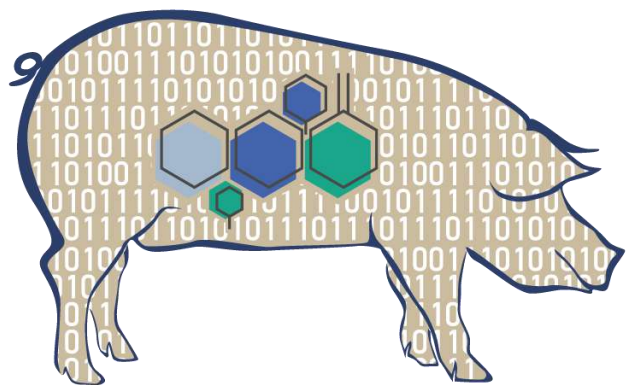
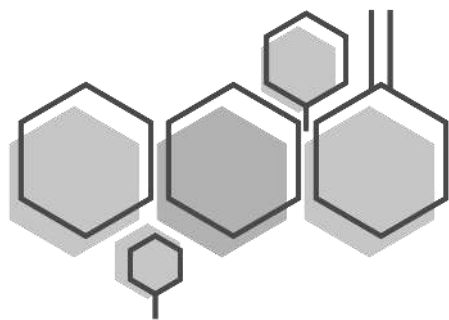
We acquired an IoT start-up team, gave it full focus and developed a new full blown IoT company as our subsidiary – this really boosted our business and even opened the German market as well

但我們並不“只”做網路控制器及軟件，也重視自己的器械開發和生產。

But we are not “only” doing IoT controllers and software – We have as well high focus on our own mechanical development and production. And using our knowledge from the simple to the complex systems



Solutions of tomorrow
accessible today



SmartFarming 智能牧場


AGRI5T5[®]
PROTEIN AUTOMATION

AutoPig

An extra ordinary solution
超凡的豬場解決方案



波克生醫股份有限公司



為什麼你的牧場需要 Autopig?



波克生醫股份有限公司



Why your farm need Autopig?

	Small	Average	Fast growers
g/day	385	491	598
1 ma	5.0	6.0	7.0
2 ti	5.0	6.0	7.0
3 on	4.9	6.0	6.9
4 to	5.0	6.1	7.0
5 fr	5.1	6.3	7.2
6 lø	5.2	6.5	7.4
7 sø	5.3	6.7	7.7
8 ma	5.4	7.1	8.1
9 ti	5.6	7.4	8.5
10 on	5.8	7.7	9.0
11 to	6.0	8.1	9.5
12 fr	6.2	8.5	10.0
13 lø	6.4	8.8	10.5
14 sø	6.7	9.2	11.1
15 ma	6.9	9.6	11.6
16 ti	7.2	10.0	12.2
17 on	7.5	10.4	12.8
18 to	7.8	10.9	13.5
19 fr	8.1	11.3	14.1
20 lø	8.4	11.8	14.8
21 sø	8.7	12.2	15.5
22 ma	9.0	12.7	16.2
23 ti	9.3	13.2	16.9
24 on	9.6	13.7	17.7
25 to	10.0	14.2	18.4
26 fr	10.3	14.8	19.2
27 lø	10.7	15.3	20.0
28 sø	11.0	15.9	20.8
29 ma	11.4	16.4	21.7
30 ti	11.8	17.0	22.5
31 on	12.2	17.6	23.4
32 to	12.6	18.2	24.3
33 fr	13.0	18.8	25.2
34 lø	13.4	19.5	26.2
35 sø	13.8	20.1	27.1
36 ma	14.2	20.8	28.1
37 ti	14.7	21.4	29.1
38 on	15.1	22.1	30.1
39 to	15.6	22.8	31.2
40 fr	Mix 0, Phase 1 4-6 kg		
41 lø	Mix 1, Phase 2 6-9 kg		
42 sø	Mix 2, Phase 3 9-15 kg		
43 ma	Mix 3, Phase 4 15-30 kg		
44 ti			
45 on			
46 to			
47 fr	19.5	28.8	40.0
48 lø	20.0	29.6	41.2
49 sø	20.6	30.4	42.4
50 ma	21.1	31.2	43.6
51 ti	21.7	32.0	44.8
52 on	22.2	32.9	46.0
53 to	22.8	33.7	47.3

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45 on			
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47 fr	19.5	28.8	40.0
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基於欄平均豬重 vs. 傳統日齡管理

- 基於日齡或是肉眼觀察調整日糧
- 優秀的管理者可以用此方法得到合理的成績表現

但是...

- 許多動物的日糧仍然不符合牠的實際體重與成長速率
- 較低的日增重與較高的飼料成本將影響生產成績

進到更高層次...

技術升級; 利用Autopig基於實際豬重做日糧調整。

為什麼你的牧場需要 Autopig?

Project summary – 保育豬

Trial from Denmark 2019; On-farm focus:

Feeding weaners - focus on change of feed mix based on weight

Mix	• Weight interval	Price feed/ kg DK 11/2021 in Euro	Calculated feed consumption/kg per pig*	Achieved feed consumption/kg per pig**	Difference in feed consumption per pig kg	Price difference per pig Euro
Mix 1	6-9 kg	€ 0,57	6	3,2	-2,8	-€ 1,60
Mix 2	9-15 kg	€ 0,39	14	12	-2	-€ 0,78
Mix 3	15-30 kg	€ 0,35	20,5	21,5	1	€ 0,35
			40,5	36,7	-3,8	-€ 2,03
Produced weaners per year			100000	Potentiel yearly savings on feed		€ 202.600,00

說明:

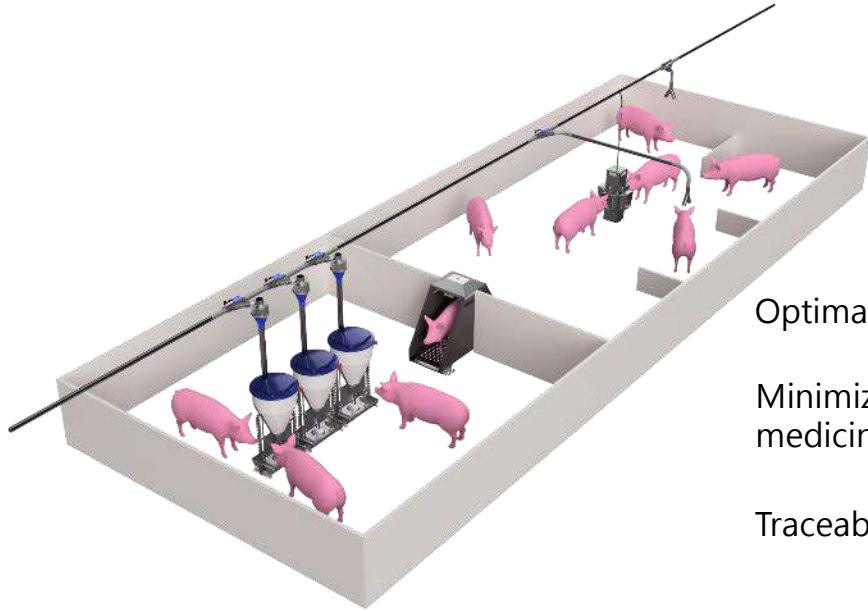
- * 根據日齡調整日糧-根據欄中體型最小豬作為調整日糧參考
- ** 根據豬重調整日糧-分為慢速成長，平均成長，快速成長三群，分欄飼養。

保育期
節省飼料
3.8Kg/豬

The weight gives a good overview of the daily growth and what happens when we change feed.

Are we changing too fast or are we changing too slowly?

We can quickly see this on the curves the weight generates and thus we can adjust our feed change or try other mixtures.



Optimal feeding



Minimize medicine



Traceability



Animal welfare



Better economy







Sustainability



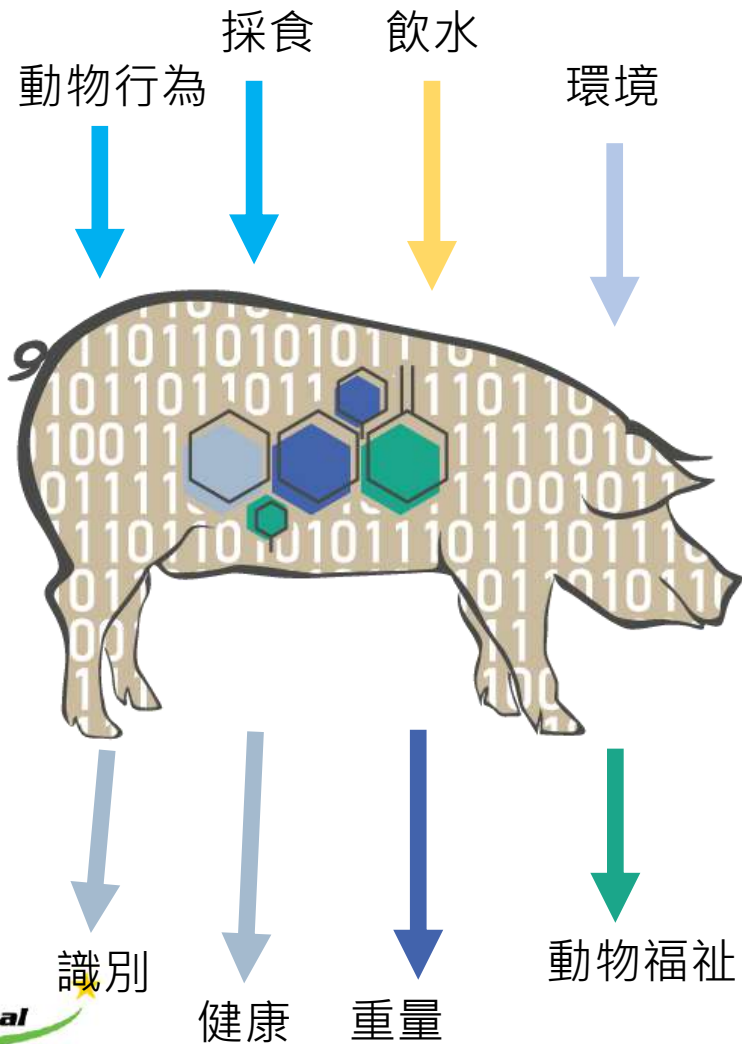
特點：

- Autopig 是一項監控，管理與產生豬隻資料的工具
- 資料搜集是透過豬隻與科技間的交互作用取得
- 數位化豬隻資料，提供動物即時最佳化管理與動物福祉
- 最佳或豬隻表現：監控、生長控制、精準掌握配方更換時間、豬隻處理紀錄、飼料消耗的影響
- 牧場管理者與豬隻的互動-管理決策基於客觀資料
- 可由手機、平板、電腦等，線上取得雲端所有資料
- 有不同版本，包括離乳、肥育

額外選配：

- 流量計 – 監控豬隻飲水量 
- 畜舍溫度 – 監控畜舍靠近動物之微氣候環境 
- 噴漆記號 – 到達目標體重動物自動標記 
- RFID 識別 – 了解各別豬隻表 

AutoPig – 精準飼養管理



沒有人能24小時全天候監控動物飼養欄狀況。AutoPig 可以做到，它能提供即時的日增重、採食量、耗水量、溫度等相關數據。因此，只需些微調整，便可優化您的產值並提高豬隻福祉。在某些情況，甚至可以降低一半的飼料成本。

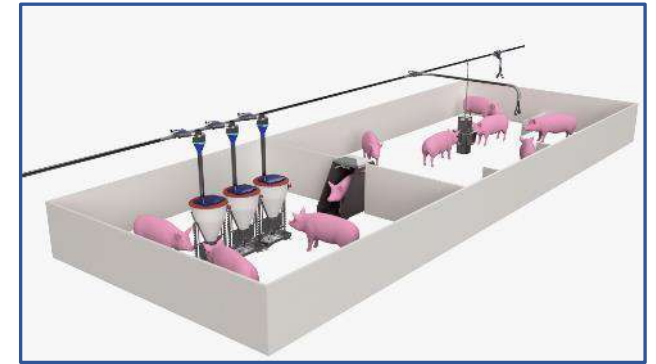
Diagnostic platform 欄內動物診斷平台

動物健康早期預警可藉由觀察：

- 活動量
- 動物行為
- 採食與飲水
- 環境

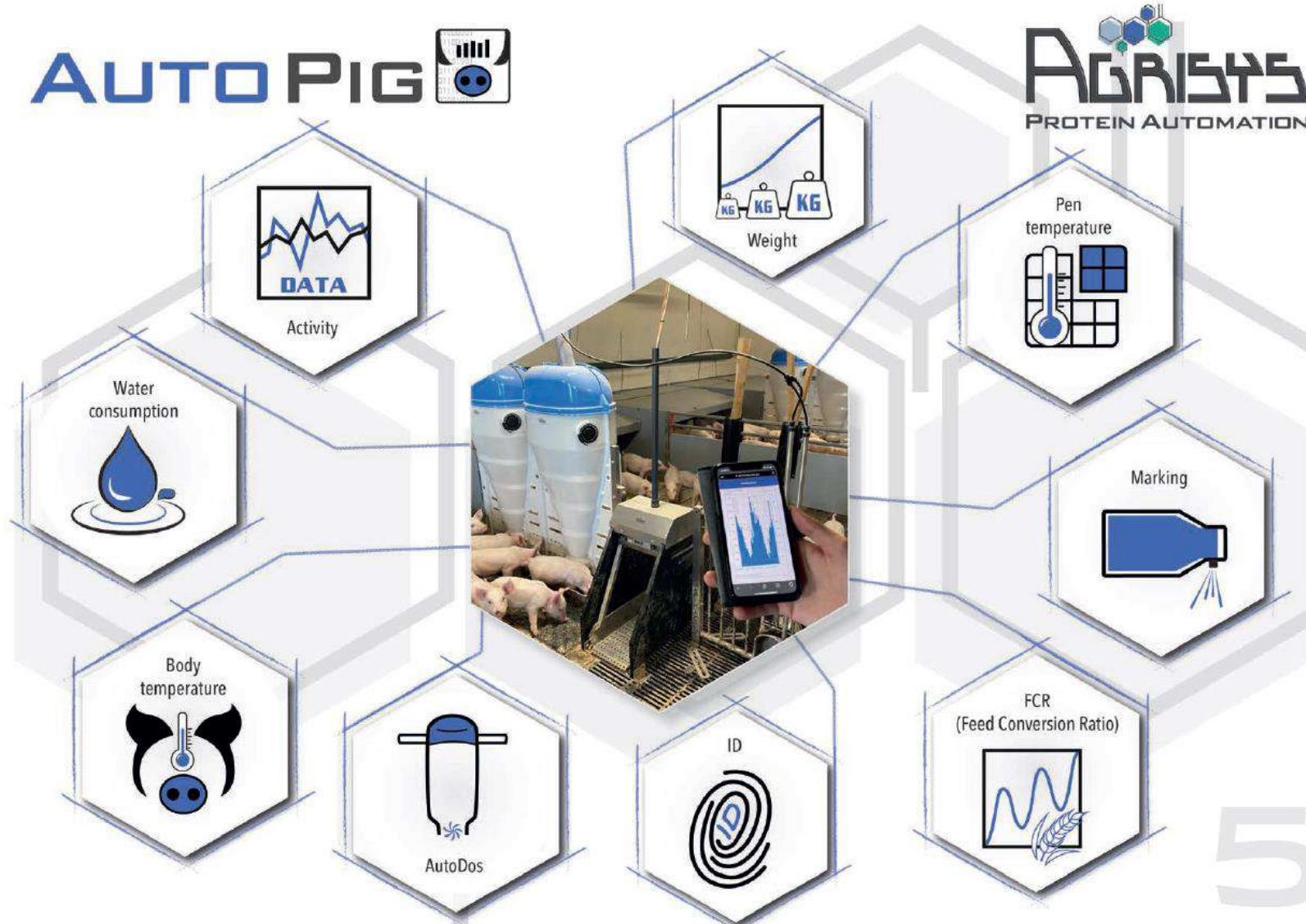
有用的工具

- 改善牧場生物安全
- 創造永續蛋白質生產環境
- 在最佳時機介入以產生最佳成績
- 產生最精準上市體重範圍，以取得最大上市價格(跨欄安裝)
- 降低死亡率



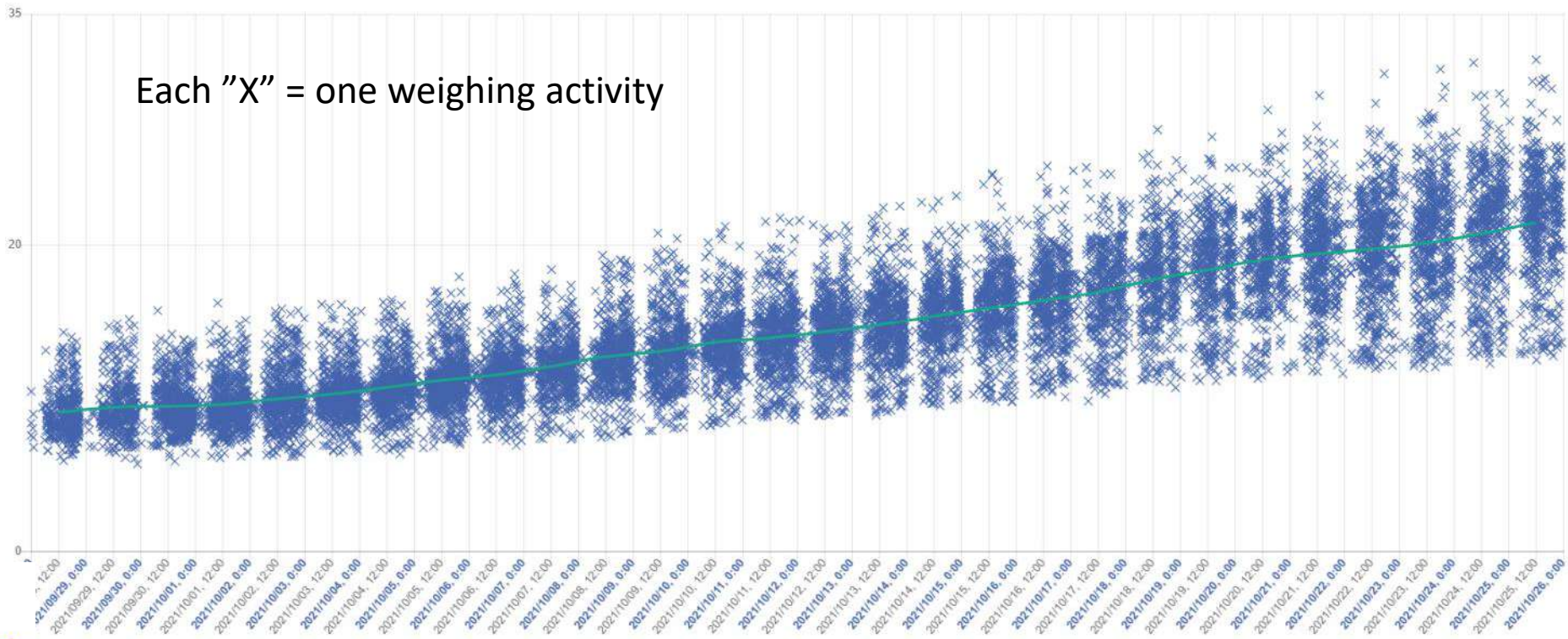
AutoPig – 精準飼養管理

Precision Pig Farming



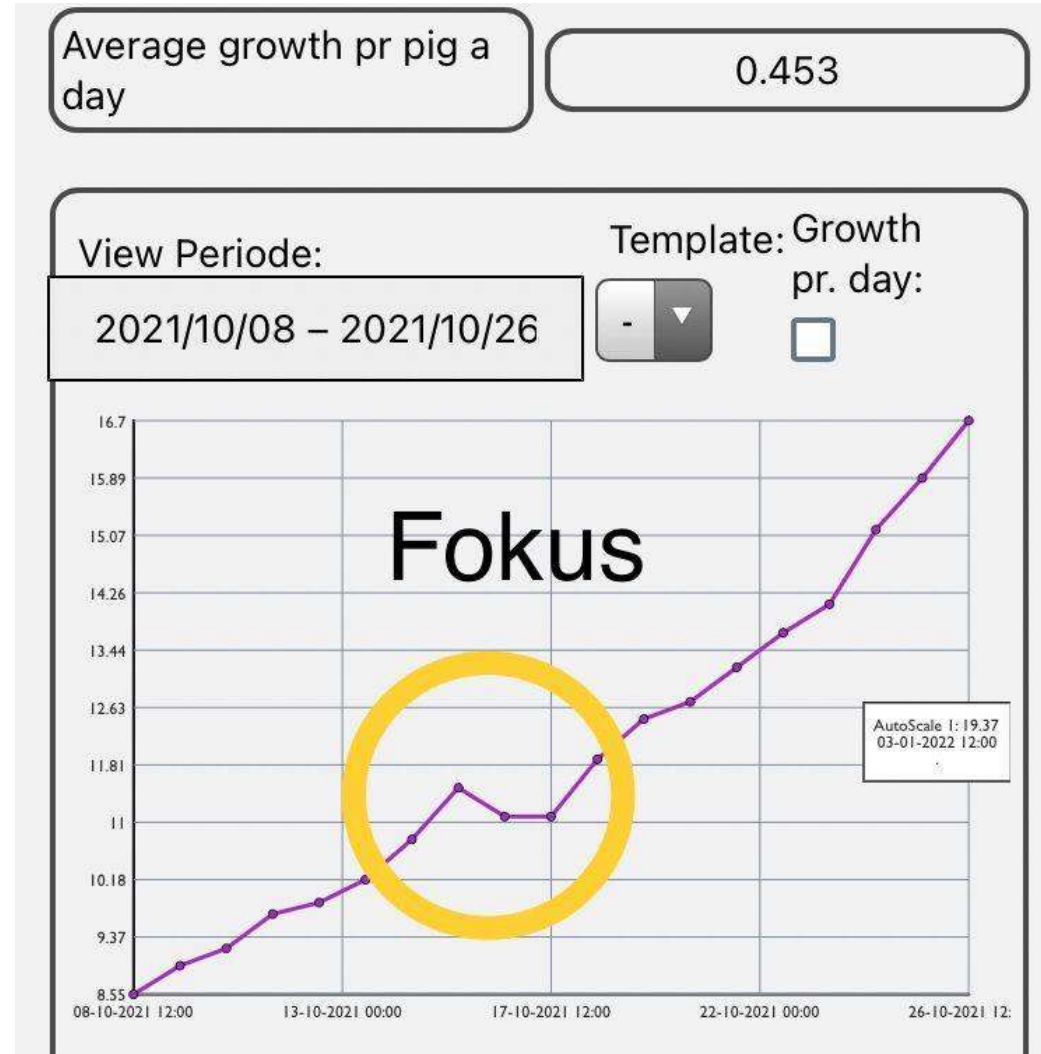
AutoPig – 精準飼養管理

Precision Pig Farming



AutoPig – 精準飼養管理

Precision Pig Farming



*Source: Easy Gain



AutoPig – 精準飼養管理

Precision Pig Farming

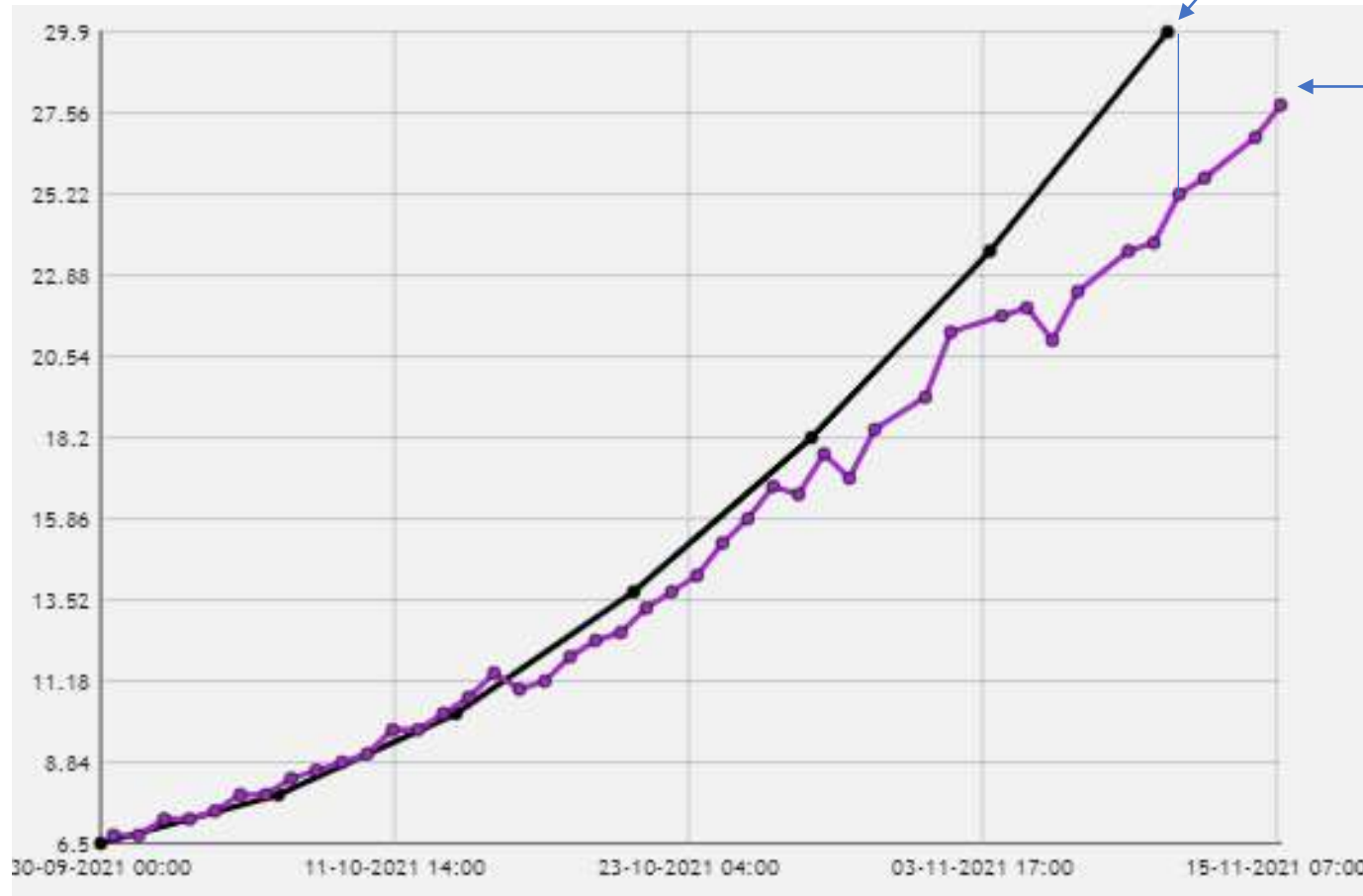


目標成長曲線 目標重量 29,9 kg

實際成長曲線重量 25,21 kg

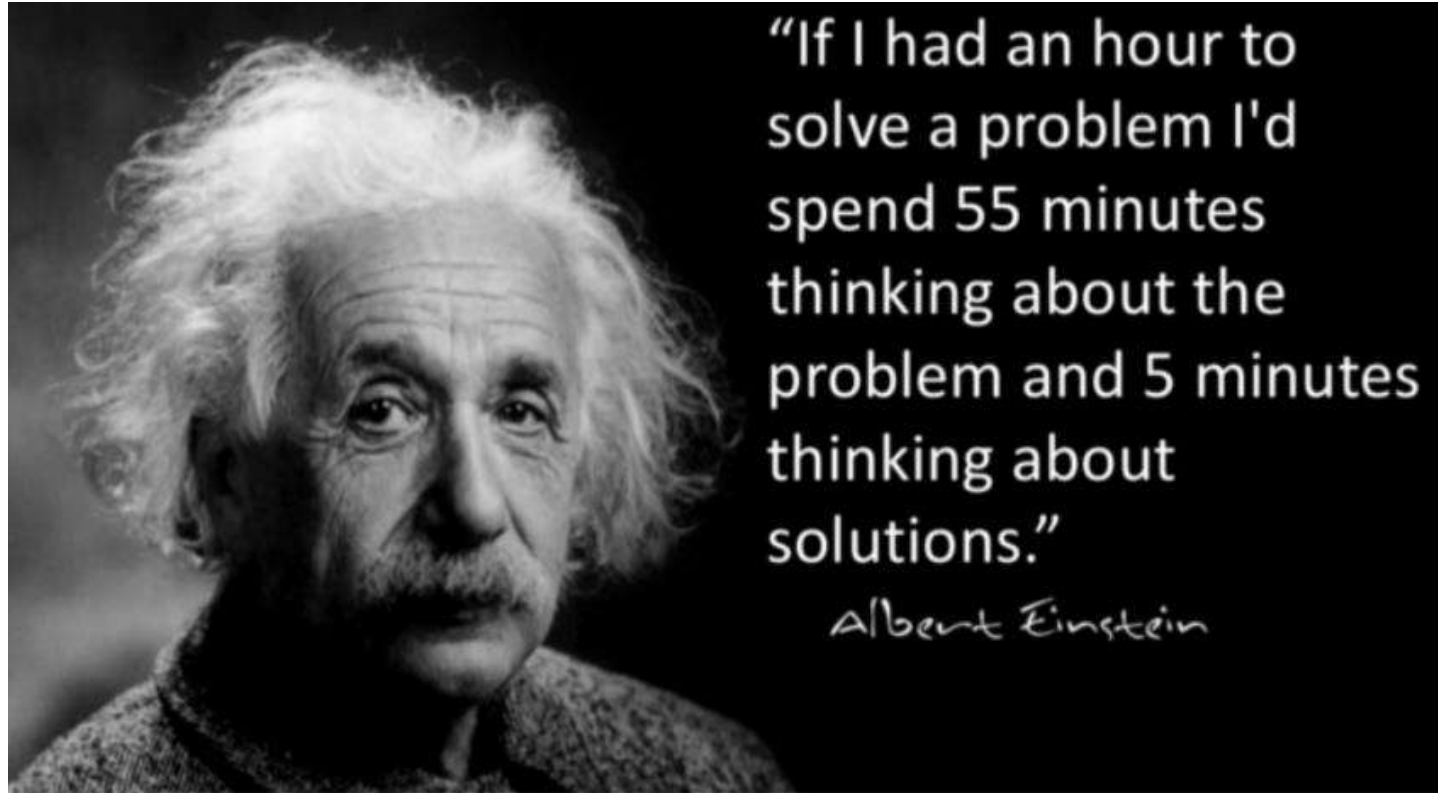
11月 11日 重量差 = - 4,69 kg (不足)

需要 額外8天達到目標 29,9 kg!



AutoPig – 精準飼養管理

Precision Pig Farming



Autopig能大幅節省你找出根本問題的時間，讓你可以花時間在解決問題本身。

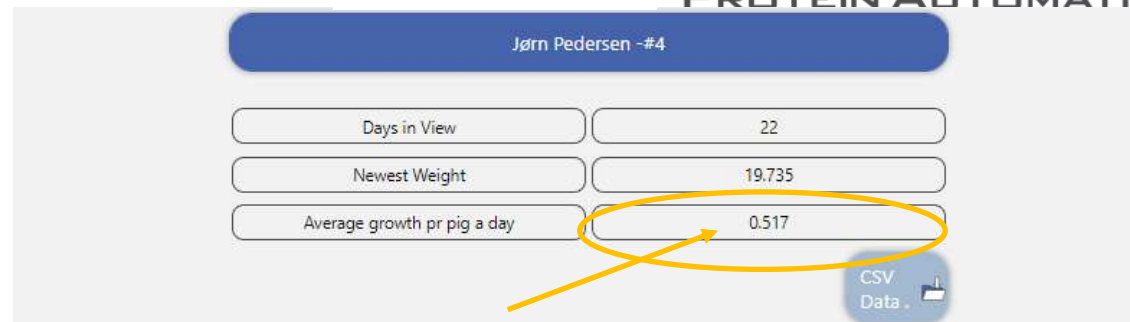
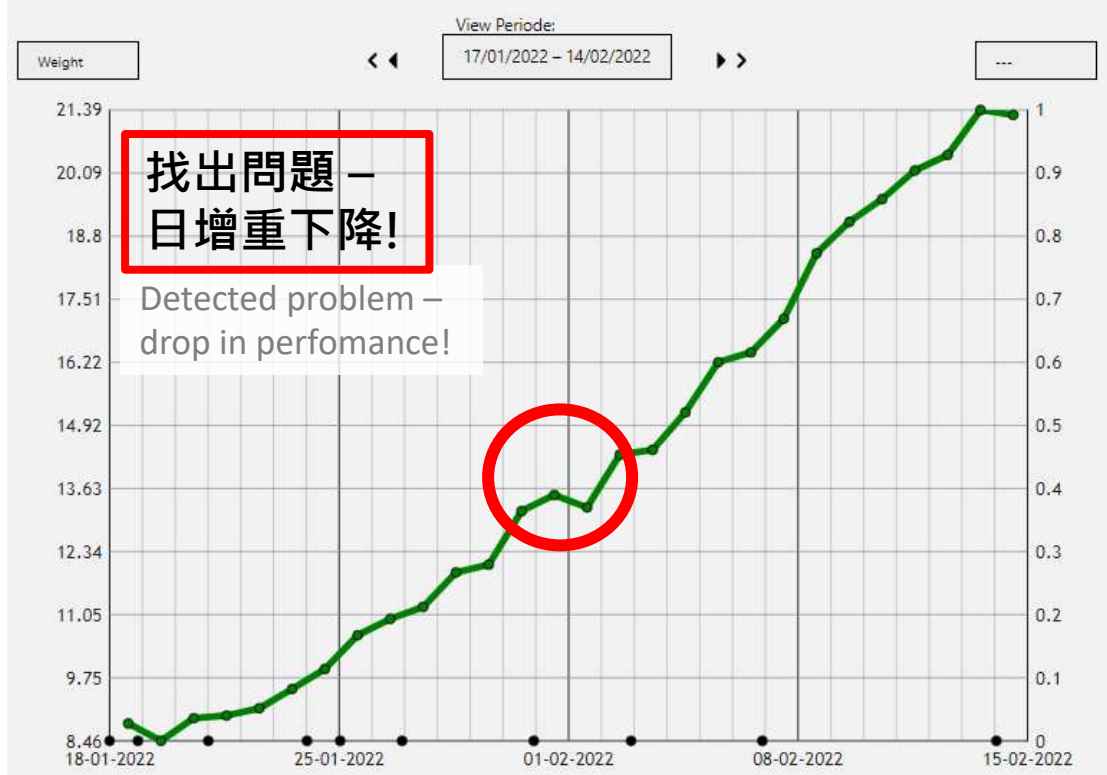
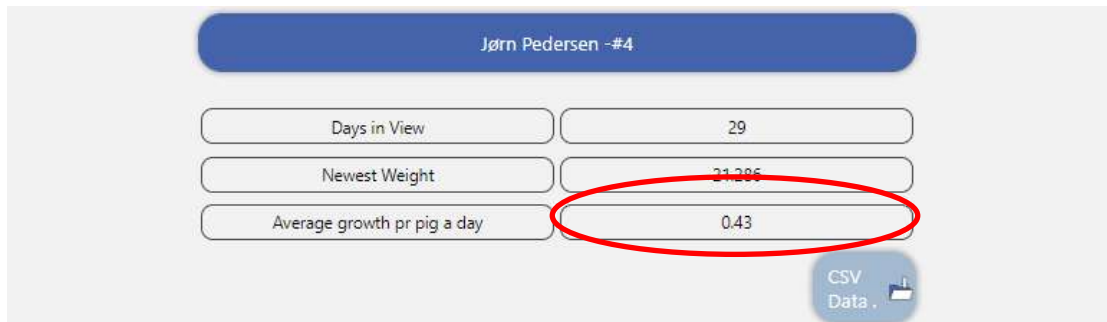
The point he makes is important: preparation has great value to problem solving. With AutoPig we get the data and the information to help us identify where and what the problem is – then we can move fast forward to thinking about the solution and problem solving.



AutoPig – 精準飼養管理



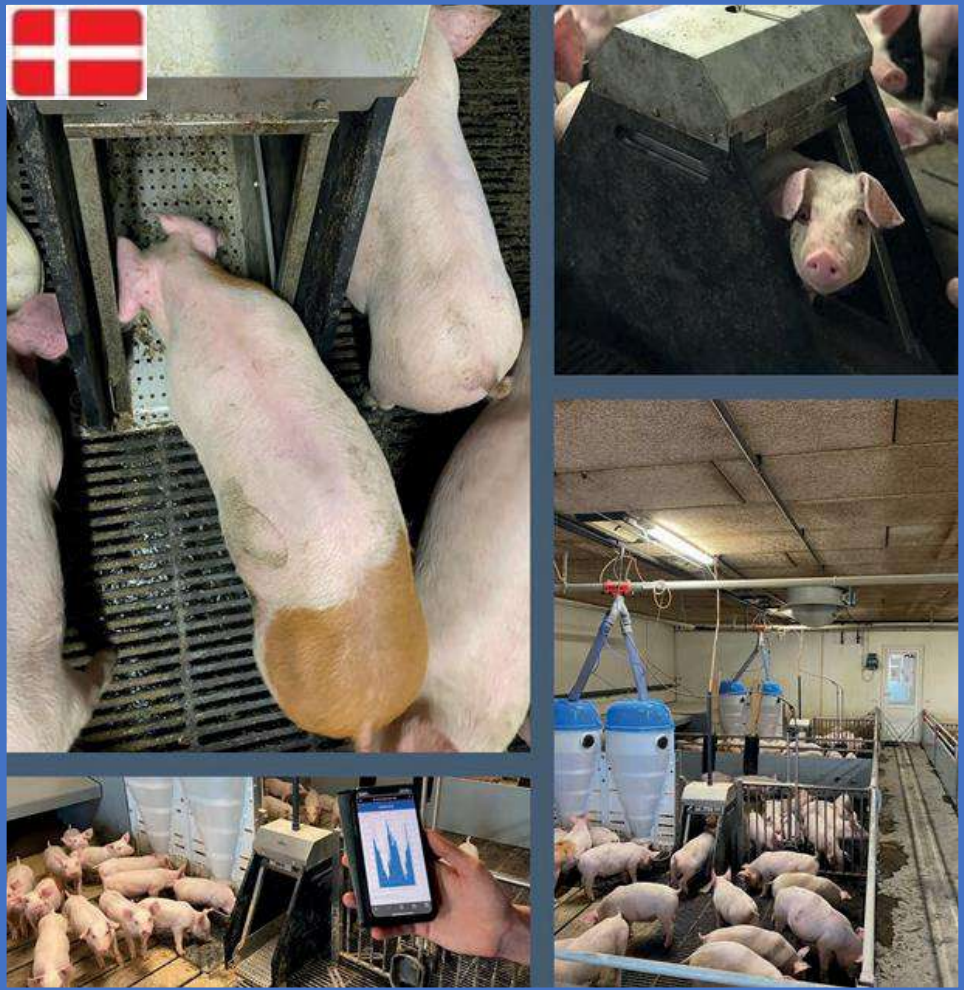
Precision Pig Farming



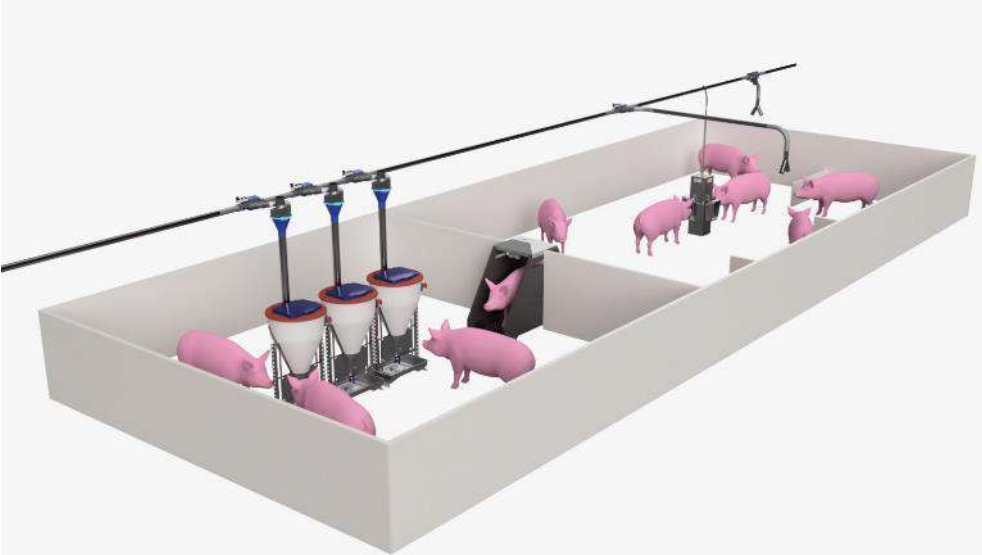
日增重提高 + 87 公克/天/頭



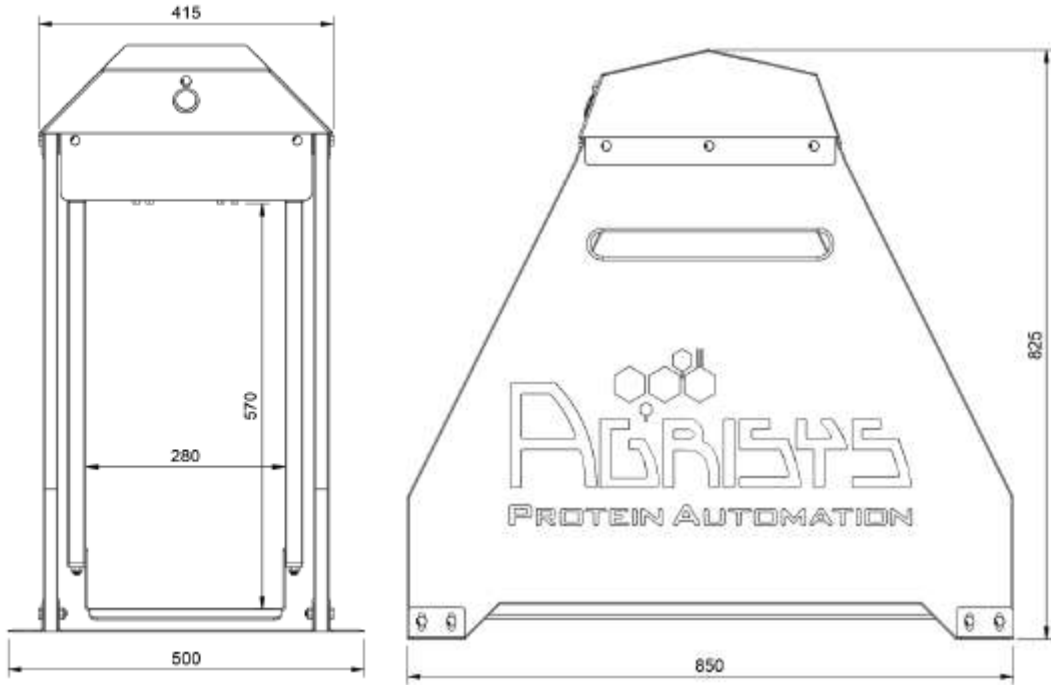
AutoPig - Weaners



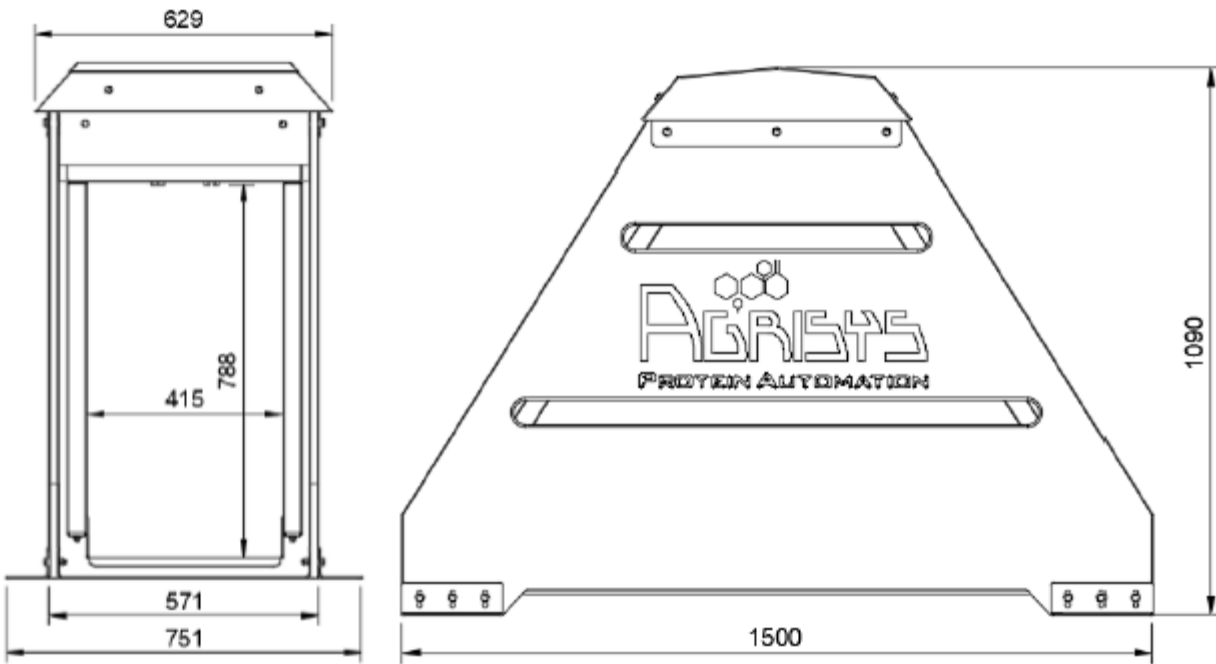
AutoPig - Finisher



AutoPig – Dimensions



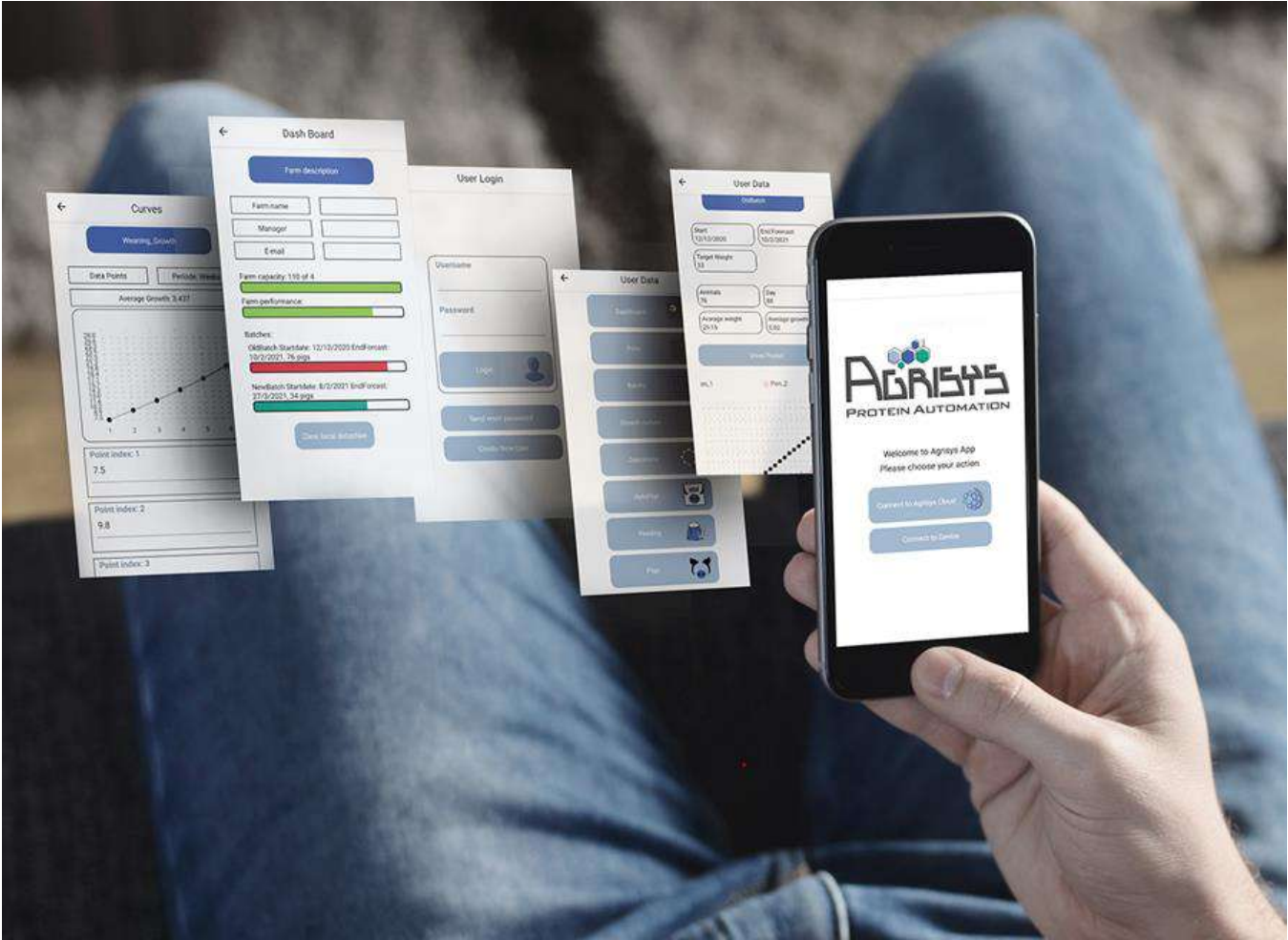
AutoPig Weaners



AutoPig Finisher



Agrisys App – The Quick overview



Agrisys App – 快速檢視



AutoPig 由 Agrisys
ConSys 控制平台控制

通過應用程式或平板及電
腦輕鬆進入Consys 用戶
界面，例如Agrisys 飼料
系統

AutoPig is powered by
Agrisys ConSys control
Platform

Easy accessible through
the app or as a
integrated part

of the Consys user
interface for e.g.
Agrisys feed system

每日管理

Daily Management



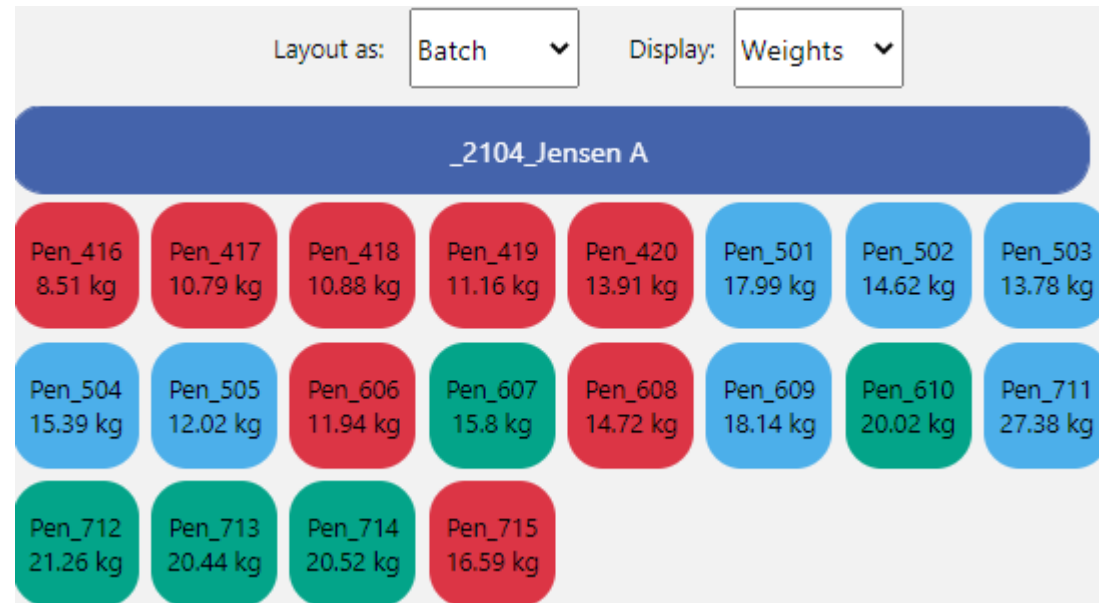
- 顏色管理
- 非預期行為或表現下降警報
- Color codes for easy recognition
- Alarms on performance and unexpected behavior

欄位檢視:

- 快速檢視目前所有欄位狀態

Pen view:

- Quick overview of current status



全場檢視

The complete view



- 也有各別欄位檢視與報告
- 可以在各檢視畫面依據實際欄位動物數量修正
- 資料可以透過API與第三方豬場管理軟體傳輸
- Also available in all reports and specific pen views
- Live gathering and correcting in all views.
- Available through 3rd parties using API

資料格式：

- 重量
- 飲水
- 溫度

Data typey

- Weight
- Water
- Temperature
- Etc.

全場歷史資料

The complete history and current flow



← Pen_601 →	
Pig count	30
Batch	_2104_Jensen B
Batch Age Days	37
Pen start day	7
Average Weight	17.63
Average growth pr pig a day	0.289
Growth Curve	Jensen
Alarm Min-Max	5% - 5%



- 歷史資料一直存在
- 容易追蹤資料或報告進度
- Previous data always available
- Easy to follow or report progress

Silo Log	
Silo: 8	68.592
Silo: 3	273.707
Silo: 5	0.86
Silo: 6	21.345

Daily Feed Log	
2021/11/21 : silo: 6	11.189
2021/11/21 : silo: 3	14.889
2021/11/20 : silo: 6	7.435
2021/11/20 : silo: 3	18.6
2021/11/19 : silo: 6	2.721
2021/11/19 : silo: 5	0.88

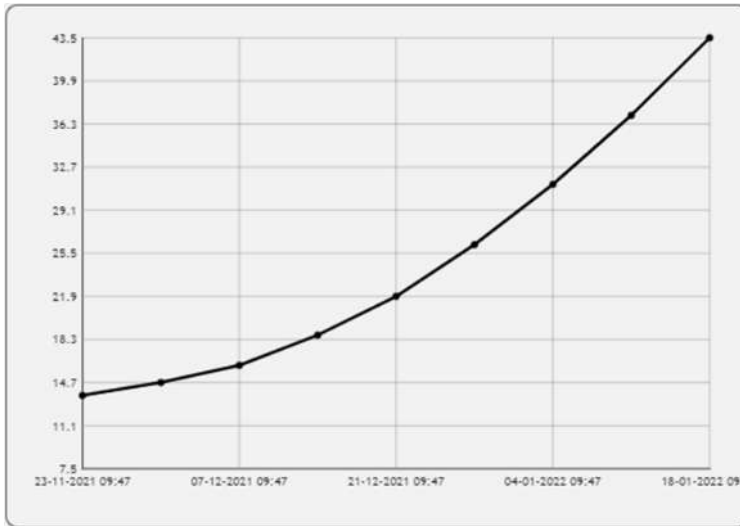
Control weighings	
18-11-2021 08:11:48	458.97 kg : 30 pigs
04-11-2021 09:37:01	308.18 kg : 30 pigs
Is Activity: 23-10-2021	270 kg : 30 pigs

Activity Log	
04-11-2021 13:04:22	Pen Note: I mixed Octacilin with food from the feeder and gave them on the floor.
04-11-2021 07:06:27	#3 - Death 1 * Death of 12 kg
23-10-2021 13:33:26	32 * Add pig of 7.844 kg

Weight
Note
Add Pig
Move Pig
Treatment
Sold Pig

設定個別日增重目標

User specific configurations



- 設定目標成長曲線
- Set expected growth curve



Day: 0	Weight: 7.5
Day: 7	Weight: 8.5
Day: 14	Weight: 10.5
Day: 21	Weight: 13.5
Day:	Weight:

- 設定欄位動物處置項目
- Set treatments



Farm Settings

Id: -MZwYV6T3IEJCSb4IQ4

Pen design size
33

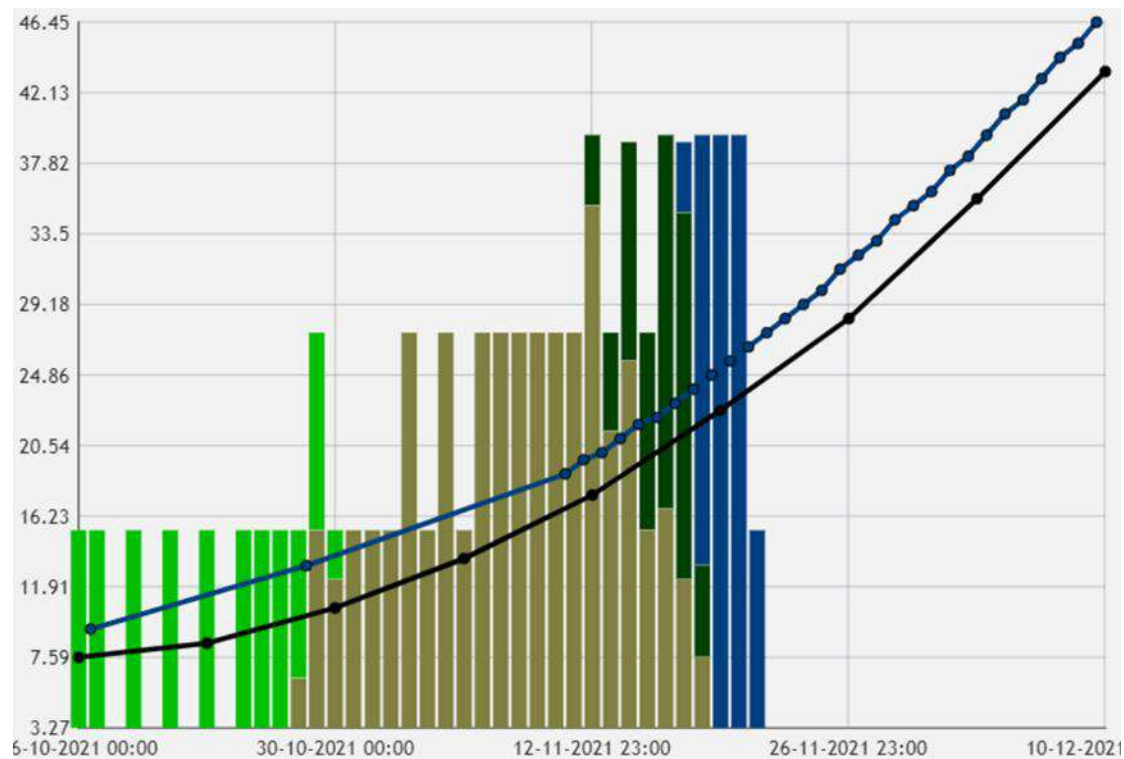
Treatments

Code	Name	Death	Use
#1	Hernia	<input type="checkbox"/>	<input checked="" type="checkbox"/>
#1013	Killed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
#2	Slaughter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
#3	Death	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
#4	E colie	<input type="checkbox"/>	<input checked="" type="checkbox"/>
#400	Pain	<input type="checkbox"/>	<input checked="" type="checkbox"/>
#405	Diarrhea	<input type="checkbox"/>	<input checked="" type="checkbox"/>
#5	streptococ	<input type="checkbox"/>	<input checked="" type="checkbox"/>
#6	Lungs	<input type="checkbox"/>	<input checked="" type="checkbox"/>

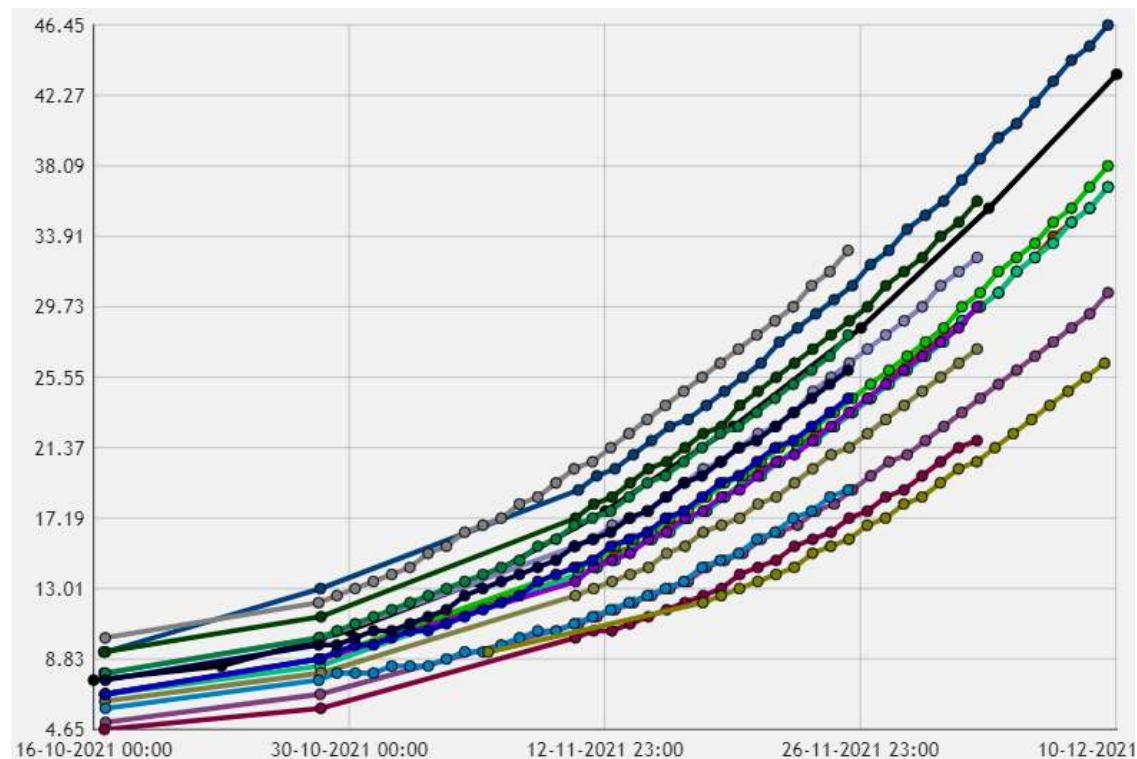
報告與比較

Report and compare

- 批次報告-日增重與餵飼
- Batch Report – growth and feed



- 比較不同批次表現
- Comparison performance different batches



報告與比較

Report and compare

- 批次報告-散裝桶批次資料，每日餵飼資料，欄位處置資料
- Batch Report – Silo log, Daily feed log, Activities

Batch Display

Start date:	16-10-2021
Batch Age Days	37
Pig count	622
Average Weight	10.879
Average growth pr pig a day	0.194

Silo Log		Daily Feed Log	
Silo: 7	1904.851	2021/10/16 : silo: 7	65.181
Silo: 8	6.565	2021/10/17 : silo: 7	65.222
Silo: 3	4334.148	2021/10/19 : silo: 7	26.086
Silo: 5	328.474	2021/10/20 : silo: 7	26.08
Silo: 6	530.985	2021/10/21 : silo: 7	13.065
		2021/10/22 : silo: 7	30.099

Activity Log	
Pen_610: 16-11-2021 08:53:16	#5 - streptococ 1 * Killed of 11 kg
Pen_420: 16-11-2021 08:18:30	#5 - streptococ 1 * Killed of 7 kg
Pen_419: 16-11-2021 08:12:29	#7 - small piglets 1 * Moved of 5.7 kg Skinny
Pen_608: 14-11-2021 07:43:37	#5 - streptococ



- 重量控制 – Autopig自動取得重量功能
- Control weighing's – fetch function

Control weighings

View data for: All

Excel print

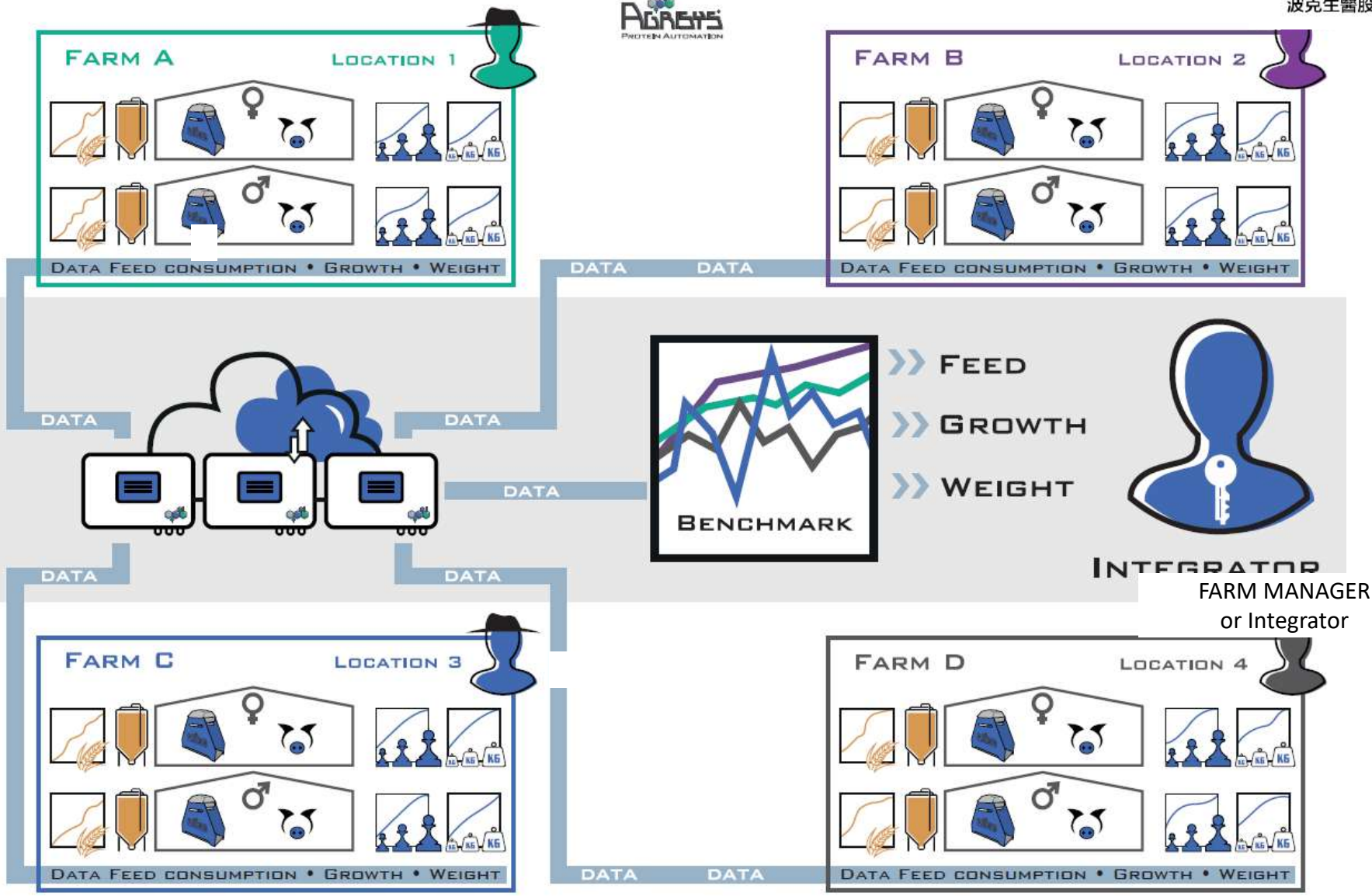
Date:	Pig count	Weight	Weight pr. pig	Growth pr. pig, pr. weight	Avagerage Growth pr. pig a day
Pen_416:					
6-11	34	181	5.32	-	-
18-11	32	230.74	7.21	157	157
Age: 133	Ind: 181	Out: 235	0.406		
Pen_417:					
6-11	32	221	6.91	-	-
18-11	31	285.2	9.2	191	191
Age: 160	Ind: 221	Out: 224	0.019		
Pen_418:					
6-11	32	222.98	6.97	-	-
18-11	32	297.45	9.3	194	194
Age: 512	Ind: 222.976	Out: 0	0.436		
Pen_419:					
6-11	32	243	7.59	-	-
18-11	31	296.8	9.57	165	165



AutoPig – 全面檢視 brings the overview



波克生醫股份有限公司



比較各場生產表現

Benchmark your production Sections on same farm site or different farm sites

Add the number of AutoPigs that fits your production and your request of data!

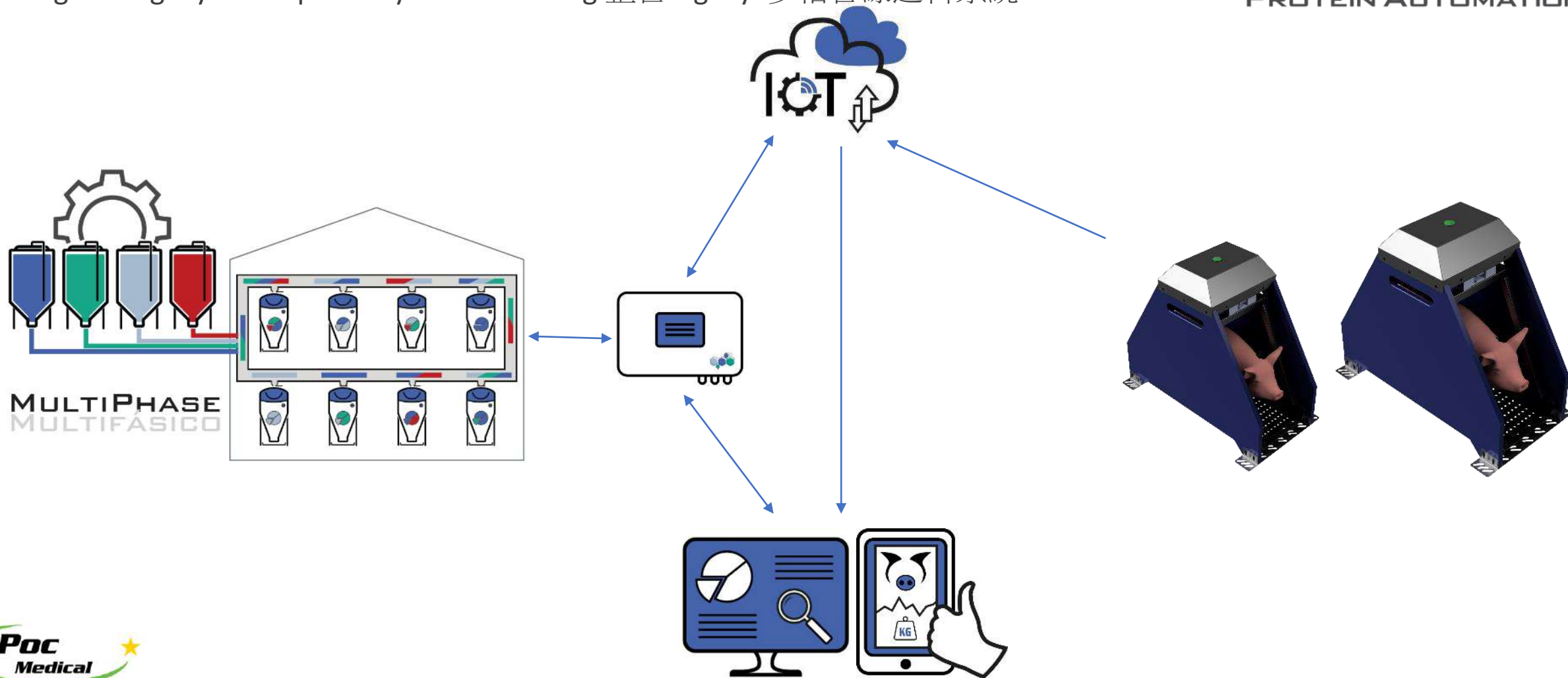
遠端了解牧場之表現，並透過即時資料做出正確決策。

Get the full insight from distance and make decisions based on data.

下一步-完全自動化



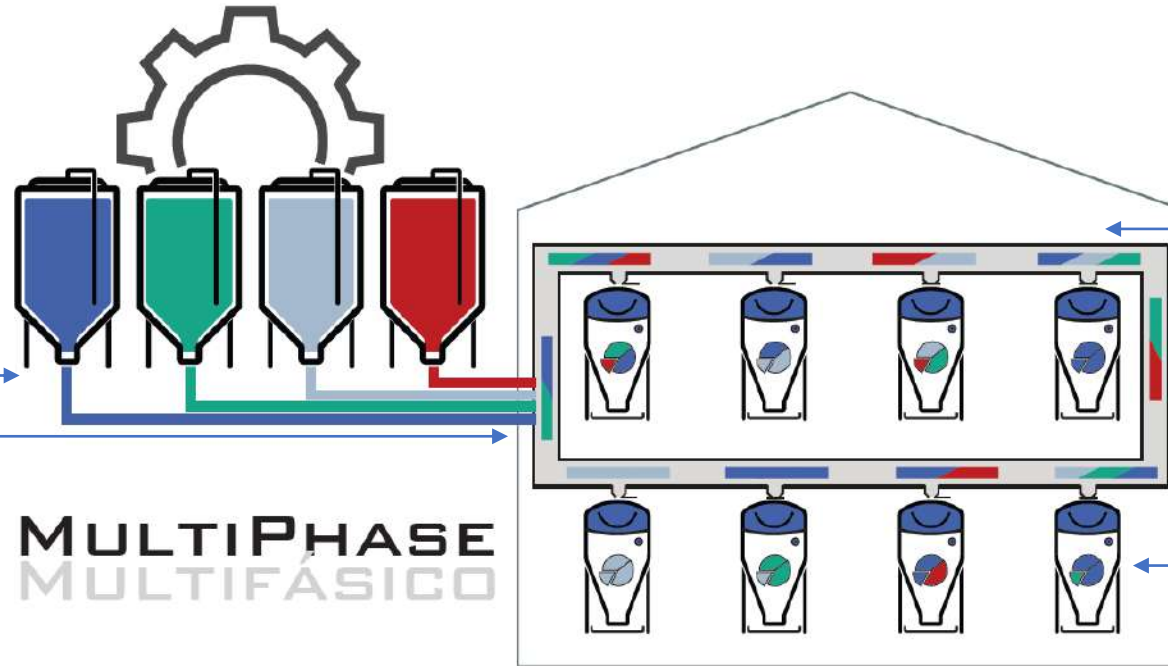
AutoPig and Agrisys Multiphase system-- AutoPig 整合 Agrisys多相管線進料系統



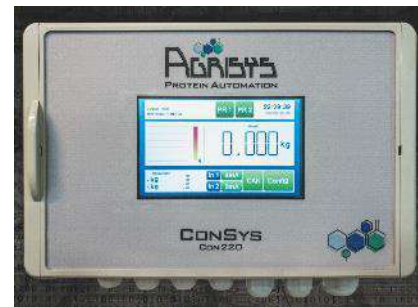
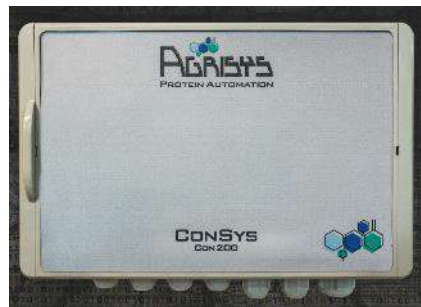
Agrisys 批次處理系統-多相管線進料系統



Agrisys BatchSys – Multiphase system



MULTIPHASE
MULTIFÁSICO



問題與討論

Q & A