

Chief Editor: WY Ng
Editors: KC Teo, YH Gan, SL Kong & M. Malaswamy

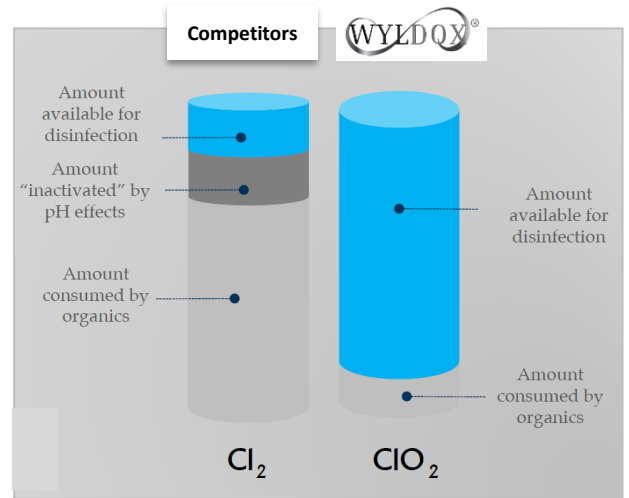


Wyldox: An Ultra- Pure Synergistic Blend of Oxygen Compounds

The ALL-IN-ONE disinfectant solution for your water and bio-security needs.

Wyldox Tabs are the next generation disinfectant tablets used as a One-Stop Solution for all the water and biosecurity needs at the farms. From disinfecting the drinking water to farm sanitation, Wyldox does it all.

Wyldox Tabs are unlike any other presently available compounds. Wyldox Tabs are an ultra-pure synergistic blend of oxygen compounds, specially designed and developed for the livestock sector to serve its needs.



Bacteria Free Water
Wyldox Kills 99.99% Bacteria & Viruses present in the water

Eradicates Biofilm
Destroys biofilm completely, ensuring the supply of clean water

Non-Carcinogenic
Does not produce any cancer related by-products unlike other chemicals

Super Economical
A very large amount of water can be treated in 1 tablet

No By-Products
Wyldox does not produce THM's or Chlorinating by-products in water

Wide pH Range
Wyldox is effective against a wide range of pH: 4 to 11





Wyldox proven to kill the African Swine Fever virus in just 60 seconds!

Wyldox is a super-powerful broad-spectrum biocide and one of the leading disinfectants in the field of biosecurity. It is being used in more than 8 countries around the world with excellent feedback and economics. Wyldox is taking the industry by a storm and helping the farmers suffering from viral outbreaks.

An efficacy study was conducted by the renowned Agricultural Research Council of South Africa to test the efficacy of Wyldox against the ASF Virus, and as a result, Wyldox achieved a complete inactivation of the ASF virus in just 60 seconds of contact time at a dilution from 1:400 (1 Tab per 4 Liter of water), making it one of the most powerful biocides present in the market.

RESULTS:

Control results

Test organism:	ASF-0033	Titer 10 ^{6.1}
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Test results

Test sample	Sample dilution	Reduction of titer (Log ₁₀ /ml)
WYLD OX	1:400 for 1 minute	6.1 logs
WYLD OX	1:400 for 5 minutes	6.1 logs
WYLD OX	1:100 for 1 minute	6.1 logs
WYLD OX	1:100 for 5 minutes	6.1 logs
WYLD OX	1:25 for 1 minute	6.1 logs
WYLD OX	1:25 for 5 minutes	6.1 logs

Conclusion:

WYLD OX was **SUCCESSFUL** in demonstrating a > 4 log₁₀ reduction of ASFV when used at 1:400, 1:100 and 1:25 dilutions following incubation periods of 1 minute and 5 minutes at 20°C.

WYLD OX PASSED the disinfectant efficacy test against African swine fever virus.

Dosage recommendation



Shed disinfecting
1-2 Tabs/ 10 Liter water



Cooling pad disinfecting
2-4 Tabs/ 10 Liter water



Water sanitation
1-2 Tabs/ 1000 Liter water





Wyldox for poultry

One of the most crucial fundamental aspect for optimum poultry health and growth is hygienic water. Water must remain clean until it reached the birds. Thus the farm’s attention must be focused on providing clean water. Wyldox is a proven solution to provide 24/7 access to clean water to the birds. Wyldox does not only help in killing the bacteria and viruses but the oxygenated compounds in it also help improving the birds health, reducing the mortality rate and increasing the production, thereby leading to overall profits for the poultry owners.

Challenges in the poultry industry

E. Coli, Salmonella, Campylobacter, Listeria, Cryptosporidium

Taste & Odor issues

High Medical Expenses

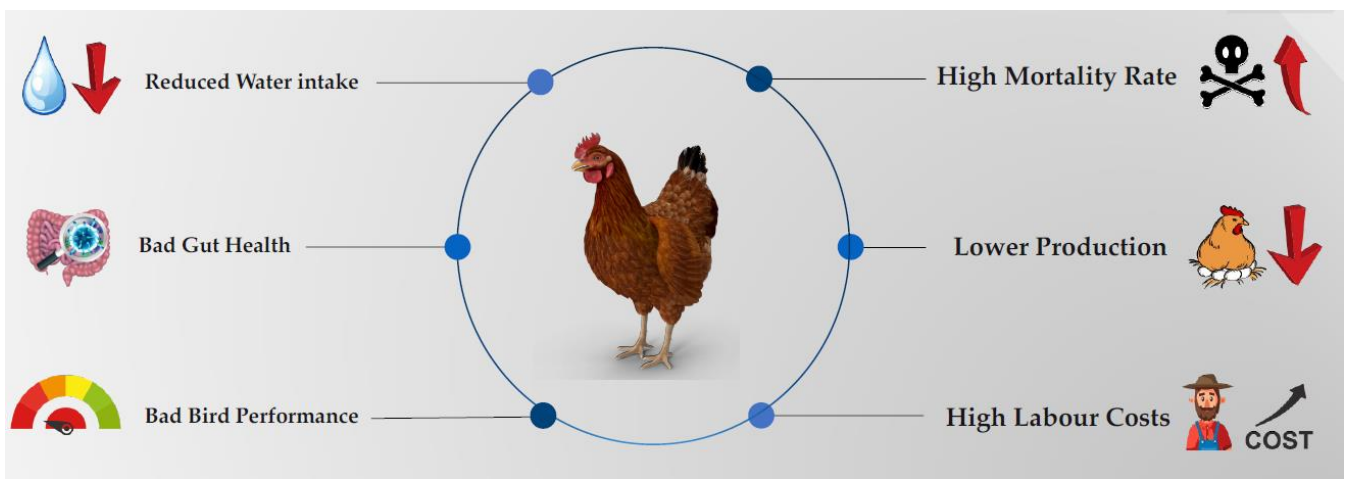
Use of Carcinogenic Chemicals

Costly & Ineffective Products

Water
Pipe Wall
Free-Floating Bacteria
BIOFILM
Biofilm Associated Bacteria

Biofilm is the perfect host for microorganisms

The consequences





Wyldox testimonials and its benefits.

✓ **Increased in egg production**

Using Wyldox, our clients have seen an increase in the egg production and overall profits.

✓ **Birds performance improvement**

Using Wyldox, our clients have seen an improvement in feed conversion ratio, better gut health and the reduction of medical expenses.

✓ **Reduction in mortality rate**

Our clients have witnessed a drastic drop in the mortality rate at their far, once they pivoted using of Wyldox.

✓ **Chronic Respiratory Disease (CRD) reduction in birds**

Our clients have witnessed a drastic reduction of CRD in birds by spraying Wyldox with the recommended dosage.

✓ **Zero mycoplasma in birds**

The continuous use of Wyldox has been proven to eliminate the mycoplasma in the birds completely, hence improving the health and performance of the birds.

Laboratory report of various bacteria and viruses.

ARBR0
PHARMACEUTICALS PRIVATE LIMITED
PANDURANGAPETA, HYDERABAD
Client: **SHRILAKSHMI STARON** Report No.: 20220610008

Sample: WYLD OX
Wfg. No.: NS
Required by: STARON CHEMICALS PVT. LTD.
Inspected by: STARON CHEMICALS PVT. LTD.
Address: 30 55 INDUSTRIAL AREA G T KARNAL ROAD, NEW DELHI-110023

Batch No: NS
Wfg. Date: NS
Expiry Date: NS
Build Site: NS
Sample Quantity: 6 Lit (250grams (A+B))

Sample ID: 20220610008
Received On: 01/06/2022
Date of start of analysis: 01/06/2022
Date of completion of analysis: 01/06/2022
Description: Value output test.
Method: Antimicrobial activity by time for ARBR0-ASTM 2315-Q2

S. N.	Organism	Initial inoculum count (CFU/ml)	Log Value	Contact Time (Hours)	Final Microbial count (CFU/ml)	Log Value	Log reduction (LR)	% Reduction
1	Candida albicans (ATCC 9002)	300	2.48	30	2.48	4.94	99.9998	
		60	2.48	30	2.15	5.27	99.9996	
2	S. aureus (ATCC 6028)	300	2.48	30	2.09	5.12	99.9992	
		60	2.48	30	1.48	5.73	99.9998	
3	Staph. epidermidis (ATCC 12228)	300	2.38	30	2.38	4.99	99.9990	
		60	2.38	30	1.90	5.37	99.9996	
4	Escherichia coli (ATCC 8739)	300	2.70	30	2.70	5.69	99.9998	
		60	2.70	30	2.30	6.09	99.9999	
5	Listeria monocytogenes (ATCC 35111)	300	1.90	30	1.90	5.63	99.9998	
		60	1.90	30	1.90	5.69	99.9999	
6	Salmonella enteritidis (NCTC 5627)	300	2.81	30	2.81	4.86	99.9988	
		60	2.81	30	2.40	4.96	99.9989	
7	Aspergillus brasiliensis (ATCC 26254)	300	1.85	30	1.85	5.63	99.9997	
		60	1.85	30	1.48	5.90	99.9999	

Percent reduction(%)= 100 x (1-10^{-LR})

Report: PARTY ASKED FOR THE ABOVE TESTS ONLY.

ARBR0
PHARMACEUTICALS PRIVATE LIMITED
PANDURANGAPETA, HYDERABAD
Client: **SHRILAKSHMI STARON** Report No.: 20220610007

Sample: WYLD OX
Wfg. No.: NS
Required by: STARON CHEMICALS PVT. LTD.
Inspected by: STARON CHEMICALS PVT. LTD.
Address: 30 55 INDUSTRIAL AREA G T KARNAL ROAD, NEW DELHI-110023

Batch No: NS
Wfg. Date: NS
Expiry Date: NS
Build Site: NS
Sample Quantity: 6 Lit (250grams (A+B))

Sample ID: 20220610007
Received On: 01/06/2022
Date of start of analysis: 01/06/2022
Date of completion of analysis: 01/06/2022
Description: Value output test.
Method: Assessment of antiviral activity-ASTM 1262-20

S. N.	Organism	Initial inoculum count (pfu/ml)	Log Value	Contact Time (Hours)	Final inoculum count (pfu/ml)	Log Value	Log Reduction (LR)	% Reduction
1	MS2 Virus (ATCC 15597-B1)	888	2.94	30	2.94	6.182	99.99993	
		60	2.94	30	2.29	6.324	99.99995	

Percent reduction(%)= 100 x (1-10^{-LR})

Report: PARTY ASKED FOR THE ABOVE TESTS ONLY.

➤ **REPORT 1**

- Tested against
 - ✓ E. Coli
 - ✓ Listeria monocytogenes
 - ✓ Salmonella
 - ✓ Candida
 - ✓ S. Aureus
 - ✓ Staph. Epidermidis
 - ✓ Aspergillus brasiliensis

➤ **REPORT 2**

- ✓ Tested against MS2 Virus





Wyldox is a one-stop solution



Water Disinfection



Shed & Equipments
Sanitization



Farm Sanitization in
presence of birds



Tray & Conveyor
Belt Sanitization



Bioflushing



Fumigation and
Cleaning of Eggs



Chicken Carcass Washing



Machinery Sanitization



Cooling Pads



Facility Sanitization

Dosage recommendation



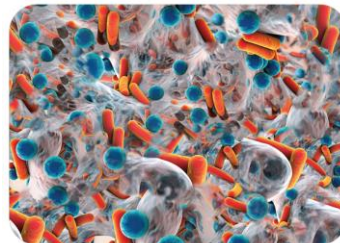
Water sanitation
1-2 Tabs/ 1000 Liter water



Cooling pad disinfecting
2-4 Tabs/ 10 Liter water



Shed disinfecting
1-2 Tabs/ 10 Liter water



Biofilm or pipeline cleaning
4 Tabs/ 100 Liter water



Preventing pathogens using *Bacillus*-based probiotics

By Jean-Christophe Bodin, Msc, Agr., Sr. Product Manager Poultry, Chr. Hansen

Keeping poultry healthy is key in modern farm management. Prevention is much more effective and cost-efficient than having to treat disease. Probiotics are as one of the strategies being used to insure health.

Proven, effective probiotics are a sustainable, natural solution, and play an integral part of prevention programmes on the farm. *Bacillus*-based probiotics are particularly well-suited for use in broiler feeds. Their spores are metabolically dormant and resilient to environmental stresses, including pelleting. With *Bacillus*-based probiotics, the main mechanisms of action for disease prevention, as well as keeping bird-health balance are biofilm creation at the top of the villi at enterocytes level, competitive exclusion, bacteriocin production and immune system modulation. Recent Chr. Hansen scientific studies helped improve overall understanding and demonstration of the complementary modes of action of *Bacillus* based probiotics in preventing *Salmonella* contamination risks:

***Bacillus subtilis* creates a protective biofilm on the enterocytes – a natural barrier for the pathogens.**

The ability of *Bacillus* spores to germinate and become viable organisms in the intestine was clarified in 2008 by Cartman *et al.* The research showed that orally administered *Bacillus subtilis* spores germinate in the chicken's gastrointestinal tract (GIT). Continuous administration of an effective *Bacillus subtilis* probiotic is advisable to achieve persistent benefits.

***Bacillus subtilis* are transient and are at the right place to act**

Bacillus subtilis colonize in the intestinal epithelium. (Figure 1). Konieczka P., *et al.* (2018), with the support of Chr. Hansen Innovation laboratory, performed a fluorescence in situ hybridization (FISH) trial to investigate spatial organization and formation of *Bacillus subtilis* biofilms. Intestinal samples from various GIT locations in six broiler chickens were used.

In Figure 1, the white fluorescence on top of the villi can be seen, as well as some luminescence inside the lumen of the intestine. This shows that transient *Bacillus* are in the intestine, live and multiplying into the lumen of the gut content.

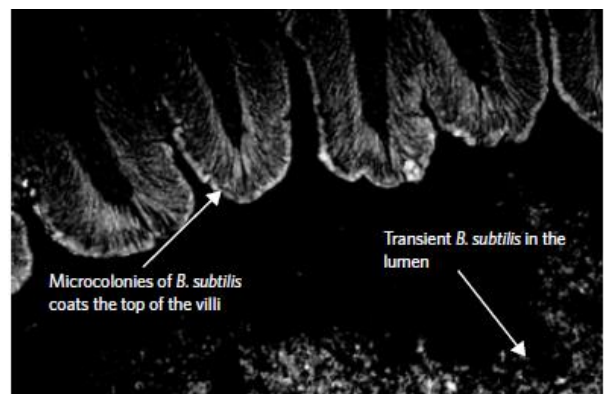


Figure 1: *Bacillus subtilis* on the villi surface and in the digesta.

Figure 1 illustrates that *Bacillus* from Chr. Hansen are able to colonize at the top of the villi. This site is one of the most sensitive parts of the epithelium. Many nutrients are absorbed here thanks to the full development of the microvilli. Most of the pathogens are acting to destroy the mucosae (*C. perfringens*, *E. coli*, *Salmonella*). By coating the epithelium at this place, *Bacillus* can bring the following advantages:

The right place to make bacteriocins efficient.

Some Bacilli are specifically strong in production of bacteriocins against unfavorable bacteria. *Bacillus subtilis* strains from Chr. Hansen have the ability to produce peptide bacteriocin substances like fengycin, iturin, mycosubtilin and surfactin that inhibit both gram negative and gram positive pathogens.

The right place for competitive exclusion

For their own development, Bacilli are able to produce multiple active enzymes in the intestinal tract. Once these enzymes are released, they continue to act on insoluble or indigestible fractions of feed cutting it into smaller pieces which are then readily absorbable by enterocytes. Feed efficiency is improved and feed residue reduction in the intestine means less available nutrient sources for most pathogenic bacteria (*Clostridium* sp., *E. coli* or *Salmonella* sp.).

***Bacillus subtilis* performs as an immune modulator**

The gastrointestinal tract is both an immune barrier as well as a huge absorptive surface. Probiotics modify the physical shape and structure of the intestine (villi length, crypts' depth) and can influence the Goblet cells numbers. 70% of the chicken's total immune system is located in the GIT. In a recent *C. perfringens* challenge trial, pro-inflammatory cytokines gene expression was measured in a group of broilers fed with or without probiotic supplementation (**GALLIPRO® Fit**). A comparison between challenge and not challenged birds was done.

The probiotic primes the immune response

The group receiving a new 3 strain *Bacillus*-based probiotic (**GALLIPRO® Fit**) without NE challenge showed no up-regulation of the pro-inflammatory cytokines genes. In the presence of the NE challenge, the group receiving the probiotic showed significant expression of the intercellular cytokines genes (Figure 2). Summarizing, if needed, the immune system reacts faster and more efficiently in birds fed with **GALLIPRO® Fit**.

The probiotic can reduce intestinal colonization of *S. enteritidis*

Salmonella: *Typhimurium*, *Enteritidis* and *Heidelberg* are three of the most prevalent serovars implicated in foodborne diseases. Two entry points are possible, either *Salmonella* penetration through a direct eggshell contamination during lay or a direct albumen or yolk contamination from an infected ovary.

Recently, in a *S. enteritidis* challenge trial with **GALLIPRO® Fit** the multi-strain probiotic, a 14% pathogen reduction in birds colonized with *Salmonella* (2 weeks post infection) was observed in the probiotic supplemented group. The probiotic has shown properties of inhibition of *Salmonella* growth in laboratory experiments, and now confirmed in live production conditions. Less *Salmonella* colonization in the intestinal tract means less contamination risks of the fecal contents, which lead to decreased likelihood of *Salmonella* contamination in produced eggs.



Scratching the ‘probiotic potential’ surface

Incorporating a **GALLIPRO® Fit** into a pathogen prevention programme can protect the top of the villi and thus prolong and protect intestinal absorptive surface, compete for space and nutrients, thereby excluding pathogens from GIT, as well as free bacteriocins that inhibit intestinal pathogens.

Furthermore, it can release enzymes locally, to digest indigestible feed fraction and reduce nutrients availability for pathogenic bacteria multiplication. It can also perform as an immune modulator and reduce the intestinal colonization of *Salmonella* in the intestinal tract, which helps to reduce risks of meat and egg contamination.

Over years of controversial debate, the answer from science-based evidence shows that we are just scratching the probiotic potential surface in poultry production. These recently discovered modes of action confirm the bright future for this technology to be a part of pathogen prevention programmes.

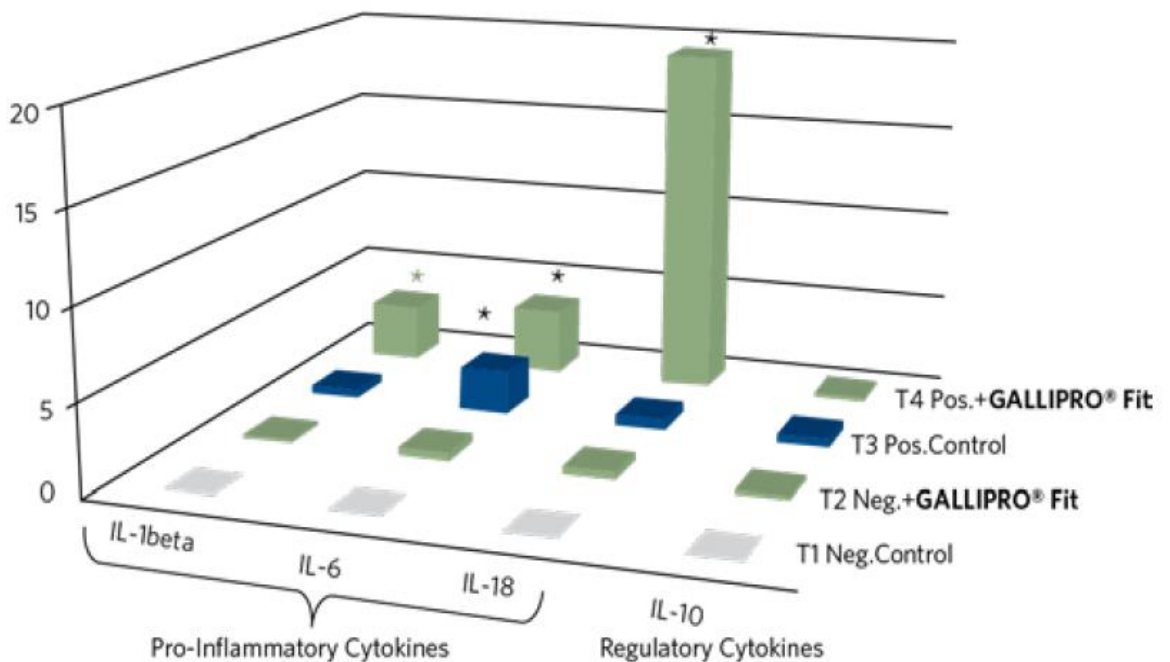


Figure 2: Cytokine genes’ expression based on Mean Fold Change (PCR)



OptiCell in gestating sow – Farrowing length and sow genetics

Field trial upper Austrian, 2019 and 2020



Aim of the study

The present study aims to evaluate the impact of OptiCell® supplementation on the farrowing process considering the sows' breeding line. For this reason, OptiCell® was provided to sows of an Austrian standard hybrid breeding line (ÖHyb, Large White x Landrace) as well as to high-prolific sows of a Danish breeding company. We hypothesize a more pronounced reduction of the farrowing duration in higher litter sizes and, thus, a stronger effect of OptiCell® supplementation in highly prolific sows compared to standard hybrids.

Animals, Material and Methods

- The trial was conducted in two consecutive runs.
- Breeding sows (40% Austrian breed ÖHYB F1 and 60% Danish breed F1):

- Run 1: September until December 2019; 38 sows
 - Danish genetic: 23 animals
 - Austrian standard genetic: 15 animals

- Run 2: February until April 2020; 41 sows
 - Danish genetic: 27 animals
 - Austrian standard genetic: 14 animals

Sows were allocated to the two treatment groups according to their breed and parity

- Diets:
 - Control group: standard gestation diet; switch to lactation diet after farrowing
 - OptiCell® group: same as control group + 2.4% OptiCell® on average on top (for details see table 2)
- Diet composition: Barley, oats, maize, sunflower meal, wheat bran, apple pulp, molasses and premix



Table 1: Composition of standard diet

		Gestation diet
Crude protein	%	13.0
Crude fiber	%	6.5
Crude fat	%	3.0
Crude ash	%	5.0
Total dietary fiber	%	18.5
Lysine	%	0.60
Methionine	%	0.23
Metabolizable energy	MJ/kg	12.0

Table 2: Feed quantities and dosage of OptiCell®

	ME	Feed quantity	OptiCell®	
Time period	MJ per sow/d	kg per sow/d	g/d	%/d
Weaning until insemination	48	3.8	65	1.7
Days 1-7	28	2.3	65	2.7
Days 8- 30	40	3.3	65	1.9
Days 31-75	32	2.7	65	2.4
Days 76-95	36	3.0	75	2.4
Days 96- farrowing	41	3.4	75	2.2



Results:

As expected, litter sizes of highly prolific sows were tremendously bigger than observed for sows of standard genetic (table 3) and, also as expected, OptiCell® supplementation caused a considerable reduction of farrowing process for sows of both genetic lines.

A direct comparison of parturition length depending on the genetic breed of sows is visualized in Figure 1 and figure 2 for highly prolific sows and standard genetic, respectively. Supplementation of OptiCell® significantly reduced farrowing duration in highly prolific sows and caused a 26% shortening of the farrowing duration (Figure 1; Mann Whitney U Test). Figure 2 reveals the same effect, albeit to a lesser extent, for sows of standard genetic. The reduction of farrowing duration is not of statistical relevance but instead is a numerical effect.

These findings are in well concordance with an increase in the number of liveborn piglets in highly prolific sows due to OptiCell® supplementation (Table 3): large litters are closely related to a prolonged farrowing duration, which in turn is an enormous stress factor. Hence, a long farrowing process is the basis of several negative consequences for both, sow and piglets, such as impaired colostrum production, impaired colostrum intake, a higher risk for oxygen deficiency or reduced fertility. Thus, a strong reduction of farrowing duration in large litters of highly prolific sows due to OptiCell® supplementation is accompanied by one liveborn piglet more per litter in highly prolific sows (Table 3).

Table 3: Impact of OptiCell® supplementation on farrowing duration and litter performance in two different breeding lines

		Control		OptiCell®	
		Austrian standard AT -	Danish genetic Dan -	Austrian standard AT +	Danish genetic Dan +
Number of litters	n	14	24	15	26
Farrowing length	min	247	392	225	272
Piglets / litter	n	14.8	22.9	14.6	21.5
Birth interval	min/ piglet	16.7	17.1	15.4	12.7
Liveborn piglets/litter	n	13.6	18.4	13.4	19.4
Stillborn piglets/litter	n	1.2	4.5	1.2	2.1
Liveborn piglets	%	92.6	83.0	93.0	90.7



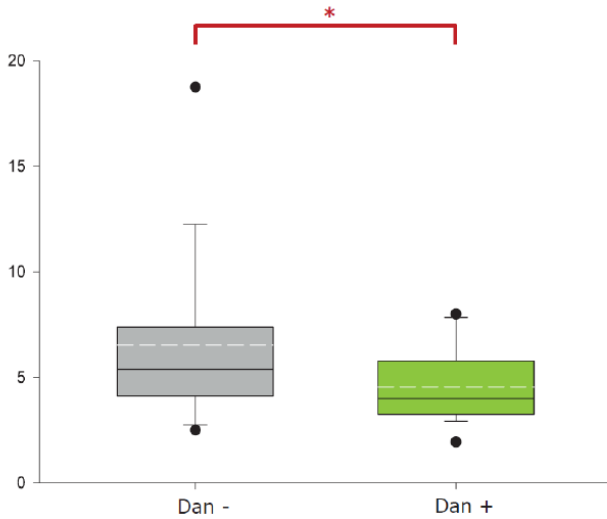
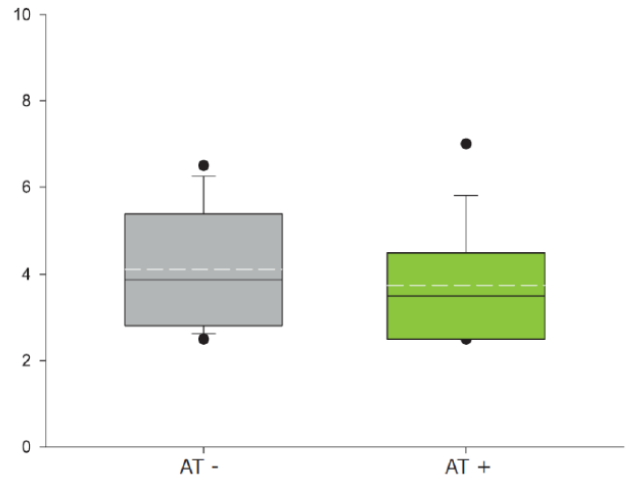


Figure 1: Duration of farrowing process in highly prolific sows without (Dan-) or with (Dan+) OptiCell® supplementation



*) Mann Whitney U Test; P = 0.036

Figure 2: Duration of farrowing process in Austrian standard sows without (AT-) or with (AT+) OptiCell® supplementation

Conclusion:

Large litter sizes are inevitably correlated to a prolonged farrowing process. This in turn bears negative consequences for both, sow and piglet. The supplementation of OptiCell® effectively reduces farrowing duration with a more pronounced impact in highly prolific sows compared to sows of standard genetics.

Conclusively, highly prolific sows in combination with a supplementation of OptiCell® are an efficient tool to cover the demand for improved animal welfare & health as well as farms' profitability.



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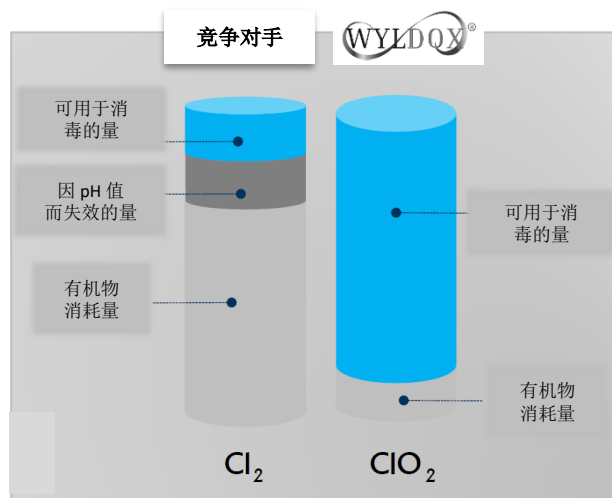


Wyldox: 一种纯氧化的协同混合物

这是能够满足您的水源和生物安全需求的一站式消毒方案。

Wyldox Tabs 是新一代消毒片剂，可作为一站式解决方案，满足农场所有水源和生物安全的需求。从对饮用水进行消毒，到卫生设施消毒再到喷洒到禽类，Wyldox 无所不能。

Wyldox Tabs 不同于任何其它目前可使用的化合物。Wyldox Tabs 是一种纯氧化化合物的协同混合物，专为畜牧业设计和开发，以满足其需求。



无菌水
Wyldox 可杀灭99.99%存于水源中的细菌与病毒

根除生物膜
彻底破坏生物膜，保证洁净水的供应

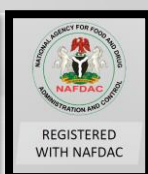
非致癌物
与其他化学物品不同，它不会产生任何相关的癌症



超经济实惠
一片剂可消毒大量的水

无副产品
Wyldox 不生产三卤甲烷及水中氯化副产物

广范围的 pH 值
Wyldox 有效于 pH 4 直 11 之间





Wyldox 被证明可以在 60 秒内杀灭非洲猪瘟病毒!

Wyldox 是一种超强效的广谱杀菌剂，也是领先于生物安全领域之一的杀菌消毒剂。已在世界各地超过 8 个国家使用，并取得出色的反馈且经济实惠。Wyldox 迅速席卷了这个行业，帮助病毒爆发中遭受煎熬的农民。

南非著名的 Agriculture Research Council 进行了 Wyldox 对抗 ASF 病毒的研究，研究结果显示，Wyldox 在稀释度 1: 400 (1 片剂 / 4 公升水)，并只需 60 秒的接触时间就可完整的活灭 ASF 病毒，这也使他成为市场上强大的杀菌剂之一。

试验结果

对照组

试验有机体	ASF-0033	Titer $10^{6.1}$
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试验组成绩

试验样本	样本稀释度	下降的滴度 (Log ₁₀ /ml)
WYLDQX	1:400 for 1 minute	6.1 logs
WYLDQX	1:400 for 5 minutes	6.1 logs
WYLDQX	1:100 for 1 minute	6.1 logs
WYLDQX	1:100 for 5 minutes	6.1 logs
WYLDQX	1:25 for 1 minute	6.1 logs
WYLDQX	1:25 for 5 minutes	6.1 logs

总结

在以 1:400、1:100 和 1:25 的稀释度，在 20 摄氏度培养 1 分钟和 5 分钟的试验结果，Wyldox 成功地证明了可消灭大于 4 log 10 的非洲猪瘟病毒。

建议剂量



猪栏喷雾
1-2 片剂 / 10 公升水



水帘清理与消毒
2-4 片剂 / 10 公升水



水源消毒
1-2 片剂 / 1000 公升水





Wyldox 用于家禽类

家禽的健康和成长最重要的基本条件之一就是得到卫生的饮用水。水源必须保持洁净直到供给家禽饮用。因此，农场必须集中注意力在提供干净的水源。Wyldox 是一个已被证实可为家禽提供 24/7 清洁饮用水的解决方案。Wyldox 不仅有助于杀死细菌和病毒，它其中所含概的氧化合物还有助于改善家禽的健康，降低死亡率并提升产量，从而为家禽业主带来更全面的利润。

家禽业所面临的挑战

E. Coli, Salmonella, Campylobacter, Listeria, Cryptosporidium

嗅觉干扰

医疗费用高

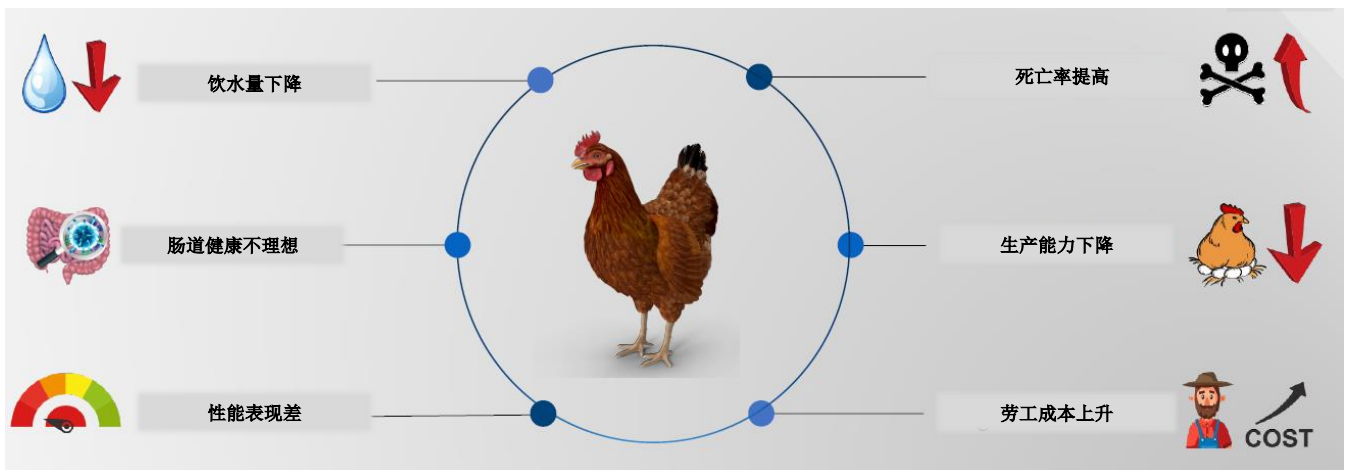
致癌化学物质的使用

昂贵且无效的产品

Water
Pipe Wall
Free-Floating Bacteria
BIOFILM
Biofilm Associated Bacteria

水管中生物膜的干扰

相续结果





Wyldox 的顾客反馈及它的益处

✓ 增加蛋产量

使用 Wyldox, 我们的客户见证了鸡蛋产量和整体利润的增加。

✓ 禽类性能表现的提升

使用 Wyldox, 我们的客户改善了饲料的转化率、改善肠道健康的状况和降低医疗费用。

✓ 死亡率下降

使用 Wyldox, 我们的客户验证了死亡率的急剧下降。

✓ 减少鸡只慢性呼吸系统疾病 (CRD)

我们的客户通过使用 Wyldox 推荐剂量的喷洒, 目睹了显著的 CRD 的病例下降。

✓ 零肺炎支原体

事实证明, 持续使用 Wyldox 可以完全消除鸡只体内的肺炎支原体, 从而改善鸡只的健康和性能。

各种细菌和病毒的实验室报告

S. N.	Organism	Initial microbial count (cfu/ml)	Contact Time	Final Microbial Count (cfu/ml)	Log Value	Log Reduction (LR)	% Reduction
1	E. coli (ATCC 8739)	2.1E+07	30 sec	300	2.15	4.34	99.9988
		60 sec	140	2.15	5.27	99.9995	
2	Salmonella (ATCC 6558)	2.6E+07	30 sec	330	2.08	5.12	99.9992
		60 sec	50	2.48	5.71	99.9998	
3	Staph. aureus (ATCC 12228)	1.9E+07	30 sec	190	2.28	4.99	99.9990
		60 sec	80	2.90	5.27	99.9995	
4	Staph. epidermidis (ATCC 8739)	2.6E+07	30 sec	30	3.70	5.89	99.9998
		60 sec	30	3.70	6.09	99.9999	
5	Listeria monocytogenes (ATCC 49619)	1.7E+07	30 sec	40	1.50	5.83	99.9998
		60 sec	20	1.30	5.99	99.9999	
6	Salmonella (ATCC 6011)	2.3E+07	30 sec	320	2.51	4.86	99.9988
		60 sec	750	2.40	4.96	99.9989	
7	Aspergillus brasiliensis (ATCC 26504)	2.4E+07	30 sec	70	1.85	5.63	99.9987
		60 sec	30	1.48	5.90	99.9999	

Percent reduction(%) = 100 x (1-10^{-LR})

S. N.	Organism	Initial viral count (pfu/ml)	Log Value	Contact time	Final viral count (pfu/ml)	Log Value	Log Reduction (LR)	% Reduction
1	MS2 Virus (ATCC 2557-B)	3.8E+07	8.58	30 sec	250	2.40	6.18	99.99993
		60 sec	30	2.25	6.34	99.99995		

Percent reduction(%) = 100 x (1-10^{-LR})

➤ REPORT 1

• Tested against

- ✓ E. Coli
- ✓ Listeria monocytogenes
- ✓ Salmonella
- ✓ Candida
- ✓ S. Aureus
- ✓ Staph. Epidermidis
- ✓ Aspergillus brasiliensis

➤ REPORT 2

- ✓ Tested against MS2 Virus

Wyldox 的一站式解决方案



水源消毒



鸡舍及用具清洗消毒



室内鸡只喷雾消毒



鸡蛋输送皮带清洗消毒



冲刷清洗消毒



鸡蛋熏蒸与清理



鸡只屠体清洗



机械清洗消毒



水帘清理

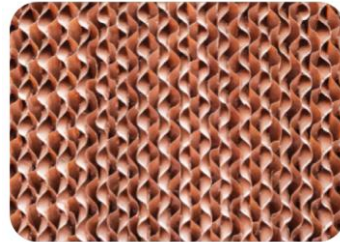


设备清洗消毒

建议剂量



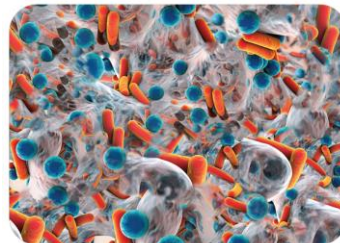
水源消毒
1-2 片剂 / 1000 公升水



水帘清理与消毒
2-4 片剂 / 10 公升水



鸡舍消毒
1-2 片剂 / 10 公升水



生物膜与水管清理
4 片剂 / 100 公升水



应用以芽孢杆菌为基的益生菌预防病原菌

By Jean-Christophe Bodin, Msc, Agr., Sr. Product Manager Poultry, Chr. Hansen

保持家禽健康是现代农场管理的关键。预防比治疗疾病有效且更具成本效益。益生菌是为确保健康亦是正在使用的策略之一。

经证明有效的益生菌是一种可持续且天然的解决方案，也是农场预防计划不可或缺的一部分。以芽孢杆菌为基的益生菌特别适合于肉鸡料。它们的代谢状态是处于睡眠期，并对环境压力（包括制粒）具有伸缩性。使用芽孢杆菌为基的益生菌来预防疾病及保持家禽健康平衡的主要作用机制是在肠道细胞层面的绒毛顶部形成生物膜，竞争排斥，生产细菌素和调节免疫系统。最近，科汉森的科学帮助提高了对芽孢杆菌为基的益生菌在预防沙门氏菌污染风险方面互补作用模式的整体理解和示范。

枯草芽孢杆菌在肠细胞表层形成保护性生物膜-病原体的天然屏障

2008年，Cartman等人阐明了芽孢杆菌可在肠道中萌发并成为活生物体的能力。研究表明，口服枯草芽孢杆菌孢子可在鸡的胃肠道（GIT）中发芽。持续服用有效的枯草芽孢杆菌益生菌可获得持续的效益。

枯草芽孢杆菌是短暂的及只在适当的部位发挥作用

枯草芽孢杆菌在肠道上皮细胞定植（图1）。Konieczka P., 等人（2018年），在科汉森创新实验室的支持下，进行了荧光原位杂交（FISH）试验，使用来自6只肉鸡不同GIT位置的肠道样本，研究枯草芽孢杆菌生物膜的空间组织和形成。

在图1中，可以看到绒毛顶端的白色荧光，以及肠腔内的一些亮光。这表示瞬时芽孢杆菌存在于肠道中，并在肠道内腔的容器中存活与繁殖。

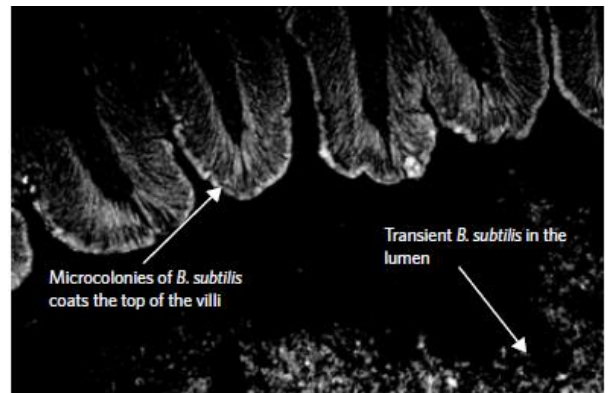


图1说明了来自科汉森的芽孢杆菌能够在绒毛的顶部殖民。该部位是上皮细胞最敏感的部位之一。由于微绒毛充足发育，许多营养物质在这里被吸收。因此，大多数的病原体也在这里破坏粘膜细胞（产气荚膜梭菌，大肠杆菌。沙门氏菌）。芽孢杆菌通过覆盖这部位的上皮细胞，可以带来以下优点：

在适当的部位发挥细菌素的效能

有些芽孢杆菌在生产对抗不利细菌的细菌素方面特别强力。而来自科汉森的枯草芽胞菌菌株能够生产肽类细菌素物质，如 **fengycin**, **iturin**, **mycosubtilin** 及 **surfactin**，可抑制革兰氏阴性和革兰氏阳性病原体。

在适当的部位排斥竞争

为了自身的发展，芽孢杆菌能够在肠道中产生多种活性酶。一旦这些酶被释放出来，它们可以继续作用于饲料中不溶解或不可消化的部分，将其切割成更小的碎片，使之更容易被肠细胞吸收。饲料效率得以提高而肠道中饲料残留物减少，这意味着大多数病原菌（梭菌芽孢杆菌，大肠杆菌或沙门氏菌）的可用营养来源也减少了。

枯草芽孢杆菌作为免疫调节剂

胃肠道是巨大的吸收表层，亦是免疫屏障。益生菌可改变肠道的物理形状和结构（绒毛长度和隐窝深度），并可影响杯状细胞数量。鸡总免疫系统的70%分布于GIT。最近，在一项产气荚膜梭菌挑战实验中，以一组添加或无添加益生菌 (**GALLIPRO® Fit**)的肉鸡中测量了促炎性细胞因子的基因表现。完成了家禽被挑战与无挑战之间的比较。

益生菌激发免疫反应

接受以新3株芽孢杆菌为基的益生菌(**GALLIPRO® Fit**)并且没有NE 攻击的实验组显示促炎性细胞因子基因没有增量调节。而在有NE 攻击的情况下，接受益生菌的实验组显示出显著的细胞间细胞因子基因的表现（图2）。总而言之，如有需要，喂饲 **GALLIPRO® Fit** 的鸡只，免疫系统可以反应的更快，更有效。

益生菌可以减少肠炎沙门氏菌在肠道定植

沙门氏菌：鼠伤寒，肠炎和海德堡是与食源性疾病有关的三种最为流行的血清型。2个可能的入口点：沙门氏菌通过产蛋期间直接污染渗透蛋壳或者直接来自受感染卵巢污染蛋白或蛋黄。

最近，在使用多菌株益生菌**GALLIPRO® Fit**进行的肠炎沙门氏菌挑战实验中，益生菌补给组观察到沙门氏菌定植（感染后2周）鸡只的病原体减少了14%。益生菌在实验室的实验中显示出抑制沙门氏菌生长的特性，而现在在活体生产条件下得到证实。肠道中沙门氏菌定植的减少意味着排泄物的污染风险降低，从而降低了产蛋时沙门氏菌污染的可能性。



抓绕“益生菌潜能”的表层

将GALLIPRO® Fit 纳入病原体预防计划可以保护绒毛顶端，从而延长和保护肠道吸收表面，竞争空间和营养物质，还可以有抑制肠道病原体的细菌素进而排除GIT中的病原体。

此外，它可以在特定部位释放酶，分解难以消化的饲料部分并减少能被病原菌繁殖利用的营养物质。它还可以作为免疫调节剂，减少沙门氏菌在肠道中定植，这有助于降低食用肉和鸡蛋被污染的风险。

经过多年有争议的辩论，并在有科学为证的案列表明，我们只是触及家禽生产中益生菌潜能的表层。这些近期所发现的作用机制亦证实了这项技术作为预防病原体计划一部分的光明前景。

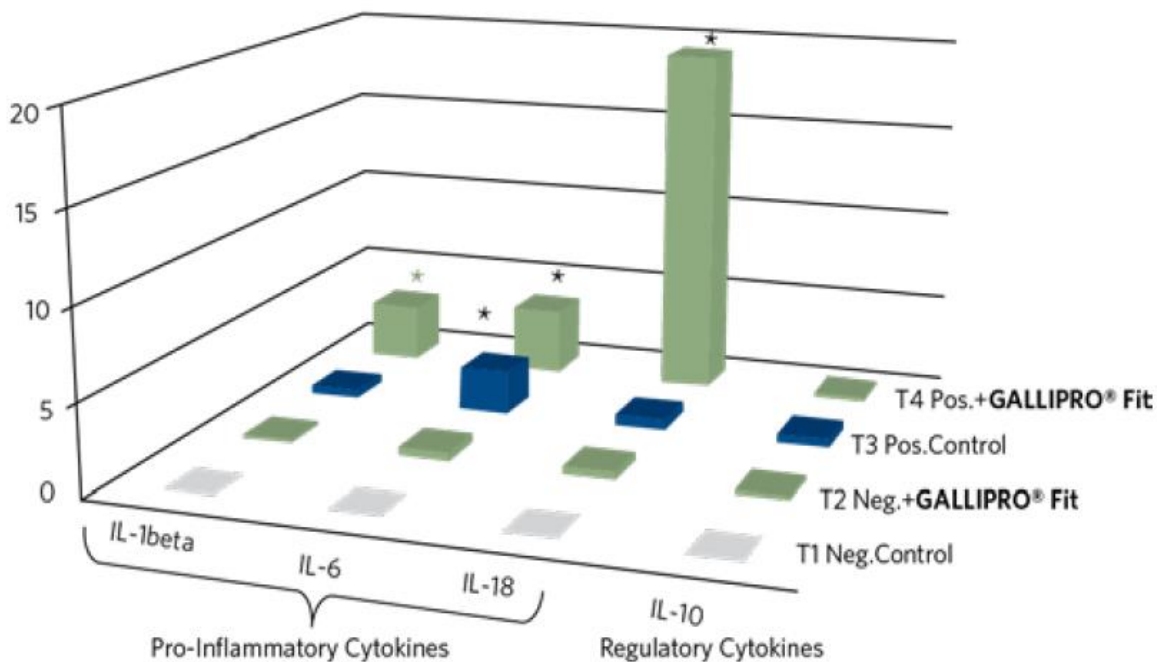


图 2: 依据细胞因子平均倍数变化的基因表现 (PCR)



怀孕母猪使用 Opticell – 探讨分娩时间与母猪基因之间的关系

2019 年和 2020 年在奥地利的现场试验



研究目的

本研究旨在评估添加 OptiCell® 对母猪分娩过程的影响，母猪品系也纳入考量。出于这个原因，OptiCell® 被提供给奥地利标准品种系（ÖHyb、大白 x 长白）的母猪以及丹麦育种公司的高产母猪。我们假设较高的窝产仔数的产仔过程所需的时间能够明显缩短，此外，与标准品种相比，在高产母猪中添加 OptiCell® 的效果更强。

动物，素材，方法

- 试验连续进行两次。
- 繁殖母猪（40% 奥地利系 ÖHYB F1 及 60% 丹麦系 F1）：

试验 1: 2019 年九月；38 头母猪

- 丹麦系：23 头
- 奥地利系：15 头

试验 2: 2020 年四月；41 头

- 丹麦系：27 头
- 奥地利：14 头

根据品种和胎次将母猪分配到两个试验组。

- 饲料配方：
 - 对照组：常规怀孕母猪配方；产后更换泌乳配方
 - OptiCell® 试验组：常规怀孕母猪配方 + 2.4% OptiCell® 添加量（详情参考表二）
- 配方成分：大麦、燕麦、玉米、葵花粕、麦麸、苹果浆、糖蜜和预混料



表一：饲料配方

		怀孕母猪配方
粗蛋白	%	13.0
粗纤维	%	6.5
粗脂肪	%	3.0
粗灰分	%	5.0
总膳食纤维	%	18.5
赖氨酸	%	0.60
蛋氨酸	%	0.23
代谢能	MJ/kg	12.0

表二：采食量与 OptiCell® 使用量

时间段	代谢能	采食量	OptiCell®	
	母猪代谢能/天	公斤/天	克/天	%/天
断奶直到授精	48	3.8	65	1.7
第 1-7 天	28	2.3	65	2.7
第 8-30 天	40	3.3	65	1.9
第 31-75 天	32	2.7	65	2.4
第 76-95 天	36	3.0	75	2.4
第 96 天 - 分娩	41	3.4	75	2.2



成绩:

正如预期，高产母猪的窝产仔数比标准母猪的产仔数多（如表三），而且，如预期的假设，OptiCell® 补充剂量显著减少了两种不同系的母猪分娩过程所需的时间。

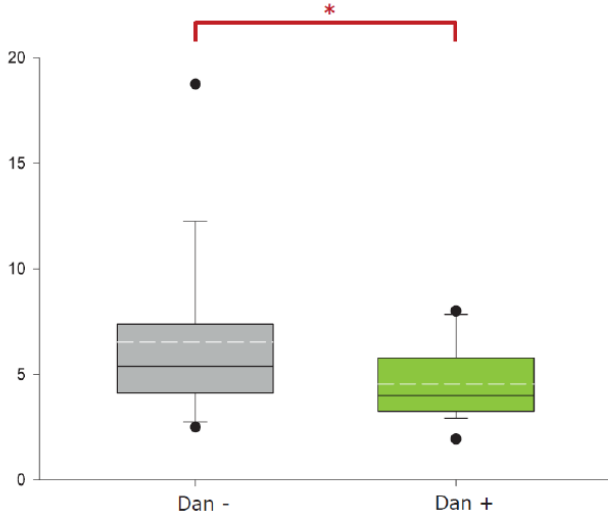
表一和表二分别显示了高产母猪和标准母猪的分娩时间的长度与母猪品种的直接比较。添加 OptiCell® 可显著地缩短高产母猪的分娩时间，试验显示可缩短 26%（如图一；Mann Whitney U 检验）。图二显示了标准母猪的相同效果，尽管显著程度较小。分娩时间的缩短与统计无关，而是一种数值效应。

试验发现添加 OptiCell® 后高产母猪中活产仔猪数量可提高（如表三）：产仔数多与分娩时间延长的关系密切，而分娩时间延长的主因是压力因素。因此，长时间的分娩过程对母猪和仔猪产生多种负面的影响，例如初乳生产受阻、初乳摄入受影响、缺氧风险增加或母猪生育力下降。因此，由于添加 OptiCell® 后，高产母猪的产仔持续时间大幅度缩短，同时高产母猪每窝活产仔猪增加也增加一头仔猪（表三）。

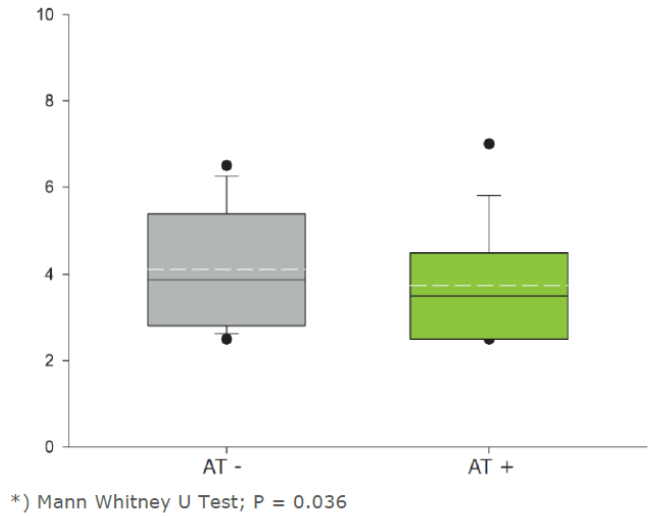
表三：OptiCell® 添加量对两个不同育种的母猪分娩所需的时间和产仔性能的影响

		对照组		OptiCell®	
		Austrian standard AT -	Danish genetic Dan -	Austrian standard AT +	Danish genetic Dan +
窝仔数	头数	14	24	15	26
分娩时间	分钟	247	392	225	272
仔猪/窝	头数	14.8	22.9	14.6	21.5
产仔间隔时间	分钟/每头仔猪	16.7	17.1	15.4	12.7
活仔猪/窝	头数	13.6	18.4	13.4	19.4
死产仔猪/窝	头数	1.2	4.5	1.2	2.1
活仔猪	%	92.6	83.0	93.0	90.7





图一：高产母猪分娩过程，Dan -（没有添加 OptiCell），Dan +（添加 OptiCell）



图二：标准母猪分娩过程，AT -（没有添加 Opticell），AT +（添加 Opticell）

结论：

多仔窝与母猪过长的分娩过程息息相关。这对母猪和仔猪都会有负面的影响。与标准母猪相比，添加 OptiCell® 可有效缩短产仔时间，对高产母猪的影响更为显著。

总而言之，高产母猪与 OptiCell® 的添加相加能改善动物福利和健康需求，也是提升农场盈利的有效工具。

