

Effects of Permasol-500[®] for improving laying hens' productivity and egg quality.

Field trial Republic of Korea, 2021



Aim of the study

To evaluate the effects of Permasol-500[®] on the increased of egg production and the improvement of egg quality in laying hens.

Experimental design

The trial were conducted in Institute of Animal Medicine, Gyeongsang National University, Republic of Korea. The study was started with 43,000 laying hens (102-week-old) in a poultry farm (Jinju, Korea).

Group	Parameters	Duration	Dosage
Before Permasol-500 [®] administration	<ul style="list-style-type: none"> ➤ Egg production ➤ Mortality rate ➤ Egg quality 	4 weeks	N/A
After Permasol-500 [®] administration		4 weeks	15 g Permasol-500 [®] per 1000 hens (mix into feed)



Results

a) Egg production and mortality rate

The egg production and mortality rate for 4 weeks of before and after administration of Permasol-500[®] were recorded. As compared with before Permasol-500[®] administration, the egg production was significantly increased ($P < 0.05$) with after Permasol-500[®] administration. There was no significant difference in mortality rate compared between 2 groups.

Table 1: Improvement of egg production and mortality rate before and after administration of Permasol-500[®].

Group	Weeks	No. of hens	No. of egg produced	Egg production (%)	No. of deaths	Mortality rate (%)
Before Permasol-500 [®] administration	1	42,901	34,068	79.41	102	0.238
	2	42,799	33,777	78.92	97	0.227
	3	42,702	33,086	77.48	99	0.232
	4	42,603	32,523	76.34	105	0.246
	Mean ± SD	42,751	33,363	78.04 ± 1.40	100.8	0.24 ± 0.01
After Permasol-500 [®] administration	1	42,383	34,788	82.08	93	0.219
	2	42,290	33,904	80.17	89	0.210
	3	42,201	34,183	81.00	91	0.216
	4	42,110	33,604	79.80	99	0.235
	Mean ± SD	42,246	34,120	80.76 ± 1.01*	93.0	0.22 ± 0.01
Variation (%)		-	-	+3.36	-	-8.3

* $P < 0.05$, compared with that before Permasol-500[®] administration.

b) Egg quality

Table 2 shows that after Permasol-500® administration, there was a significant increases ($P < 0.05$) in egg shell thickness. The Permasol-500® improved the egg quality in all aspects. It increased egg weight, height of thick albumen, egg shell thickness and haugh unit.

Table 2: Improvement of egg weight, height of thick albumen, egg shell thickness and haugh unit before and after administration of Permasol-500®.

Parameters	Before Permasol-500® administration	After Permasol-500® administration	Rate of improvement (%)
Weight of egg (g)	63.36 ± 2.41	63.73 ± 2.36	0.58
Height of thick albumen (mm)	8.28 ± 0.64	8.51 ± 0.48	2.78
Thickness of egg shell (mm)	0.408 ± 0.030	0.428 ± 0.032*	4.90
Haugh unit	90.08 ± 3.99	91.32 ± 2.57	1.38

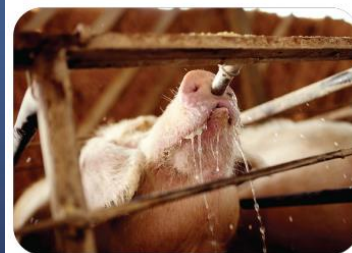
Conclusion

The study indicated that Permasol-500® can be used as feed supplement in laying hens in order to improve the egg production rate, egg quality and help to reduce the mortality rate of hens.



WYLDQX PROVEN TO KILL THE ASF VIRUS

IN JUST
60 SECONDS



WYLDQX is a super powerful broad-spectrum biocide and one of the leading disinfectants in the field of biosecurity. Being used in more than 8 countries around the world with excellent feedback and economics, WYLDQX 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 WYLDQX against the ASF Virus, and as a result, WYLDQX achieved a complete inactivation of the ASF virus in just 60 seconds of contact time at a dilution of 1:400, making it one of the most powerful biocides present in the market.

Conclusion of the study

WYLDQX was **SUCCESSFUL** in demonstrating a 6.1 log reduction of ASFV when used at 1:400 dilution rate

Recommended Dosage

2 Tabs in 10 Liters of water

*Dosage should be 2x during viral outbreak
(i.e. 4 Tabs in 10 Liters of water)



agromed®ROI in broilers – Counteracting heat stress

Field trial in University Putra Malaysia, 2022



Aim of the study

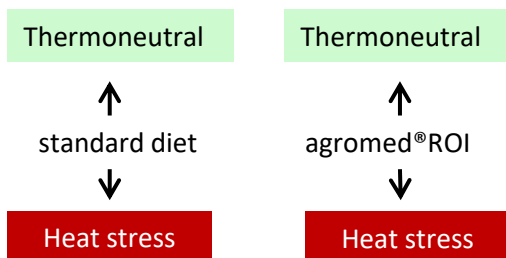
This study was designed to ascertain the effects of dietary agromed®ROI supplementation on growth performance, physiological stress response and gut health in broiler chickens raised under thermoneutral or heat stress condition.

Animals, Material and Methods

- A total of 264 one-day-old male broilers (Cobb 500) were allocated to one of four treatment groups, each comprising 6 cages a 11 birds realizing a 2 x 2 factorial trial design (Table 1). agromed®ROI was supplemented in the recommended dosage of 400 ppm.

- 2-phase-feeding regime
 - Starter period (days 1-21)
 - Grower period (days 22-35)
- Study duration: 35 days
- Heat stress regime:
 - Until day 21 all birds were housed under thermoneutral conditions of constant 22 ± 1°C.
 - From day 22 until day 35, ambient temperature was increased to 34 ± 1°C for 6 hours between 12:00 am and 06:00 pm. The time required for the temperature to increase from 22 to 34°C was approximately 30 min.
 - Relative humidity ranged between 65% and 75%.

Table 1: Scheme of trial design



Parameters measured

- Growth performance
- Livability
- Serum analysis
 - Ceruloplasmin¹
 - Alpha-1-acid glycoprotein²
 - Heat shock protein 70³
 - Diamine oxidase⁴



Results

The application of a heat stress paradigm had a significant impact on all parameters observed in this study, which gives proof of a successful challenge model in the present trial.

Table 2: Weight gain and feed intake depending on ambient temperature and agromed®ROI supplementation.

Diet	Rearing temperature	Weight gain (g)	Feed intake (g)
Standard diet	Thermoneutral	2190.1 ± 18.4 ^a	3273.6 ± 40.5 ^a
	Heat stress	2010.2 ± 54.9 ^b	3119.7 ± 34.8 ^b
agromed®ROI	Thermoneutral	2160.9 ± 22.4 ^a	3222.4 ± 36.5 ^{ab}
	Heat stress	2119.2 ± 29.4 ^a	3164.7 ± 26.5 ^b

Means within a column with no common letters differ at P <0.05.

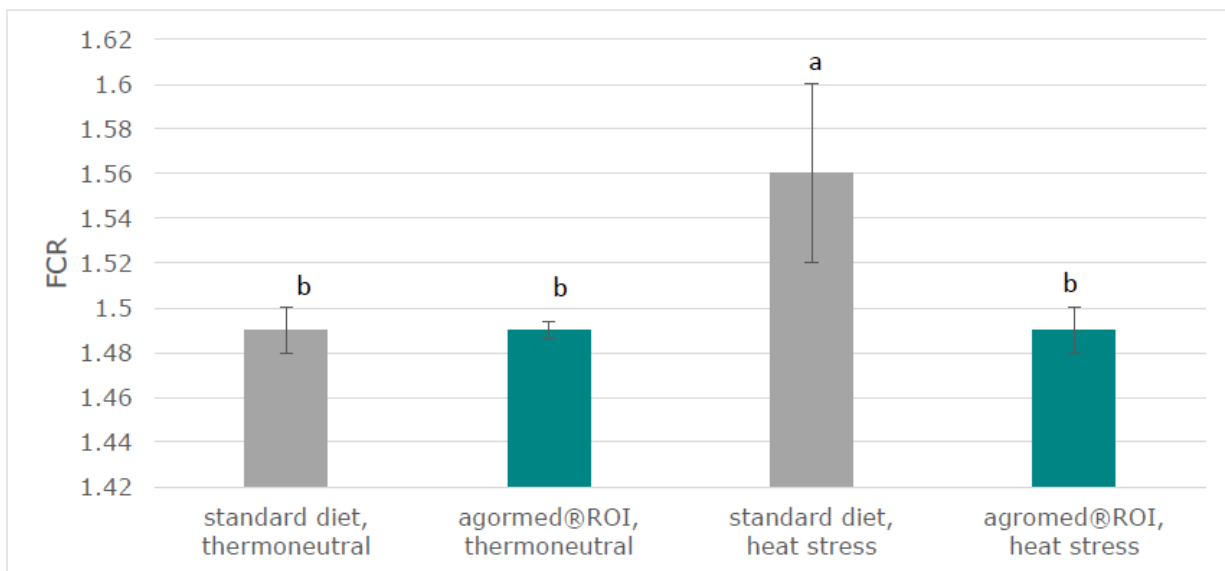


Figure 1: FCR of fast-growing broilers under thermoneutral or heat stress conditions depending on supplementation of agromed®ROI, no common letters differ at P <0.05



Table 3: Effects of heat stress and diets on mortality.

Diet (Mortality rate)	1-21 d (Mortality)	Rearing temperature	22-35 d (Mortality)	1-35 d (Mortality)
Standard diet	3%	Thermoneutral	7% ^a	10% ^a
		Heat stress	10% ^a	13% ^a
agromed [®] ROI	3%	Thermoneutral	0% ^b	3% ^b
		Heat stress	8% ^a	11% ^a

Means within a column with no common letters differ at P <0.05.

Table 4: Serum concentration of ceruloplasmin (CPN; mg/ml) depending on ambient temperature and agromed[®]ROI supplementation; mean values ± SEM.

Diet	Rearing temperature		
	Thermoneutral	Heat stress	P value
Standard diet	2.24 ± 0.20 ^{bx}	3.53 ± 0.30 ^{ax}	0.0017
agromed [®] ROI	2.52 ± 0.21 ^{ax}	2.58 ± 0.32 ^{ay}	0.869
P value	0.3417	0.0393	

^{a,b} Means within a row with no common letters differ at P <0.05.

^{x,y} Means within a column with no common letters differ at P <0.05



Table 5: Serum concentrations of alpha-1-acid glycoprotein (AGP; mg/ml) depending on ambient temperature and agromed®ROI supplementation; mean value ± SEM

Diet	Rearing temperature		
	Thermoneutral	Heat stress	P value
Standard diet	60.74 ± 6.23 ^{bx}	102.77 ± 7.81 ^{ay}	0.0001
agromed®ROI	62.78 ± 7.21 ^{ax}	54.45 ± 8.28 ^{ax}	0.434
P value	0.818	0.0002	

^{a,b} Means within a row with no common letters differ at P <0.05.

^{x,y} Means within a column with no common letters differ at P <0.05.

Conclusion

Supplementation of agromed®ROI supports gut health of fast-growing broilers by anti-inflammatory properties and, consequently, compensates heat-stress related production losses by improving growth and survival rate of fast-growing broilers. agromed®ROI is considered a beneficial feed supplement because of its profound empirical advantages: alleviation of heat stress, improvement in livability and gut health.



GALLIPRO® MS improves broiler welfare and performances

By Dorthe Sandvang, DVM, Phd, Innovation Manager, Chr. Hansen

A broiler experiment was conducted to determine the effects of a combination of the two most documented probiotic strains, found in **GALLIPRO® MS**. Two thousand male chicks (Cobb Slow) were randomly assigned to one of four treatment groups (50 birds per rep, 10 reps):

- 1) A treatment group fed daily with antibiotic growth promoter (Halquinol, HAL)
- 2) A treatment group fed daily with **GALLIPRO® MS** at 400 g/T (GPMS)
- 3) A treatment group fed daily with Probiotic E at 500 g/T (PE)
- 4) A negative control group (NC)

Halquinol, **GALLIPRO® MS** and Probiotic E were include in all diets from day 0 till the end of the trial. Zootechnical performance data, such as feed intake, body weight, feed conversion ratio and mortality (%), were collected on a weekly basis. In addition to those data, the effects of treatment on behaviour and on plasma concentrations of neurotransmitters were examined using an approximation test at 42 days of age and at 40 days of age, respectively, with the latter test sampling 8% of broilers from each treatment.

Approximation test: Evaluation of the relative reactivity of broilers when an assessor enters their pen and attempts to touch them for 3 minutes.

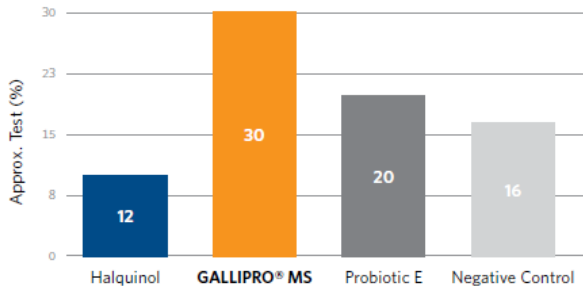
The zootechnical results for the different treatments are summarized in the Table 1 below.

Table 1: Zootechnical performance by treatment group at 42 days of age.

Treatment	BW(g) corr	FCR corr	Mortality (%)
Halquinol	2772 ^b	1,62 ^a	2,6
GALLIPRO® MS	2878 ^a	1,56 ^b	1,9
Probiotic E	2854 ^a	1,58 ^b	3,0
Negative Control	2808 ^b	1,61 ^{ab}	3,2
<i>P</i> value	0,042	0,047	0,768

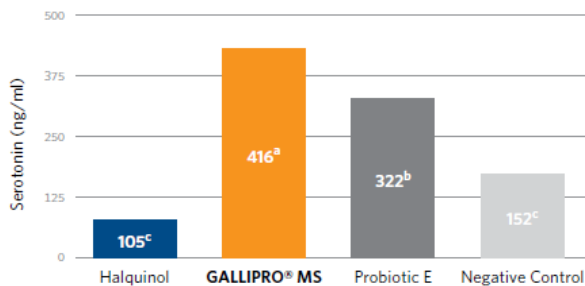
Daily feeding of **GALLIPRO® MS** and Probiotic E resulted in significant improvements in final body weight and feed conversion ratio ($p < 0.05$; both corrected on mortality) as compared to the NC and HAL groups. Empirically speaking, the group fed daily with **GALLIPRO® MS** exhibited the lowest rate of mortality. Regarding behaviors, results obtained with the approximation test are shown in figure 1.

Figure 1: Evaluation of the relative reactivity of broilers based on the percentage of birds that can be touched by an assessor in 3 min.



Birds in the **GALLIPRO® MS** group were the least reactive in the Approximation Test, indicative of their relative state of calmness. In contrast, birds fed diets containing antibiotic (HAL) were the most reactive and least calm. The magnitude of reactivity of the remaining groups was higher when compared to the **GALLIPRO® MS** group.

Figure 2: Blood circulating serotonin (5-HT) levels in broilers at day 40



Combining the outcomes of the Approximation Test with production of serotonin leads to the conclusion that daily feeding of **GALLIPRO® MS**, and its actions in the gut and on the microbiome, results in calmer birds at harvest.

With increased calmness, fewer injuries and better carcass quality would be expected.

Summary of results

GALLIPRO® MS significantly and positively impacts zootechnical performance:

- The strain of *Bacillus subtilis* are able to produce a high concentration of digestive enzymes that makes more nutrients available to be absorbed by their hosts. In addition, competitively excludes potentially pathogenic organism from attaching to the mucosa.
- The strain of *Bacillus licheniformis* in **GALLIPRO® MS** produces the antimicrobial peptide called lichenysin which actively inhibits the growth of *Clostridium spp.* and thereby reduces the risk of dysbacteriosis or enteritis.
- **GALLIPRO® MS** significantly and positively impacts the behavior and welfare of broilers.
- **All together, there results open a new era for choosing to use probiotics. Daily feeding of GALLIPRO® MS to commercial broilers was shown to be beneficial in term of performance and animal welfare.**



Permasol-500® 对产蛋鸡的生产率及蛋品质的影响 韩国农场试验, 2021



实验目的

评估 Permasol-500® 对产蛋鸡提高蛋产量和改善蛋品质的影响。

实验设计

这研究由Institute of Animal Medicine, Gyeongsang National University, Republic of Korea进行。这实验采用韩国晋州一家家禽农场的43,000只，102周龄的蛋鸡。

组别	参数	期间	剂量
未投给 Permasol-500®之前	<ul style="list-style-type: none"> ➢ 产蛋量 ➢ 死亡率 ➢ 蛋品质 	4 周	N/A
投给 Permasol-500®之后		4 周	15 克 Permasol-500® 于 1000 只产蛋鸡 (均混于饲料)



结果

a) 产蛋量和死亡率

记录使用Permasol-500® 前后 4 周的产蛋量和死亡率。与投给Permasol-500® 之前相比，投给Permasol-500® 之后的产蛋量显著的增加 ($P < 0.05$)。然而，两组之死亡率无显著差异。

表 1: 投给Permasol-500® 前后之产蛋量与死亡率的改善。

组别	周数	产蛋鸡数	产蛋数	产蛋率 (%)	死亡数	死亡率 (%)
投给 Permasol-500® 之前	1	42,901	34,068	79.41	102	0.238
	2	42,799	33,777	78.92	97	0.227
	3	42,702	33,086	77.48	99	0.232
	4	42,603	32,523	76.34	105	0.246
	Mean ± SD	42,751	33,363	78.04 ± 1.40	100.8	0.24 ± 0.01
投给 Permasol-500® 之后	1	42,383	34,788	82.08	93	0.219
	2	42,290	33,904	80.17	89	0.210
	3	42,201	34,183	81.00	91	0.216
	4	42,110	33,604	79.80	99	0.235
	Mean ± SD	42,246	34,120	80.76 ± 1.01*	93.0	0.22 ± 0.01
差异 (%)	-	-	+3.36	-	-8.3	

* $P < 0.05$, 投给Permasol-500® 之前的比较。

b) 鸡蛋品质

表 2显示，在投给Permasol-500®后，蛋壳厚度显著增厚(P<0.05)。Permasol-500®也在其他方面改善了鸡蛋品质，如增加了蛋重，蛋清高度比，蛋壳厚度和哈夫单位。

表 2: 投给 Permasol-500® 前后之蛋重，蛋清高度比，蛋壳厚度和哈夫单位。

参数	投给Permasol-500® 之前	投给Permasol-500® 之后	改善率(%)
蛋重(g)	63.36 ± 2.41	63.73 ± 2.36	0.58
蛋清高度比(mm)	8.28 ± 0.64	8.51 ± 0.48	2.78
蛋壳厚度(mm)	0.408 ± 0.030	0.428 ± 0.032*	4.90
哈夫单位	90.08 ± 3.99	91.32 ± 2.57	1.38

结论

研究表明，Permasol-500®可作为产蛋鸡的饲料添加剂，以提高产蛋率，蛋品质，并有助于降低产蛋鸡的死亡率。





WYLDQX 经证实可杀灭ASF病毒

只需

60 秒

WYLDQX 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。WYLDQX 迅速卷席了这个行业，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 WYLDQX 对抗 ASF 病毒的研究，研究结果显示，WYLDQX 在稀释度1:400，并只需要 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。

研究结果建

WYLDQX 成功显示在稀释度1: 400，降低了6.1 log 的ASF病毒。

建议剂量

2 片剂于 10 公升水
*病毒爆发期需使用两倍剂量
(4 片剂于 10 公升水))

agromed®ROI 应用在肉鸡 – 对抗热紧迫

University Putra Malaysia 试验, 2022



研究目的

本研究旨在确定日粮中补充agromed®ROI对热恒温或热紧迫条件下饲养的肉鸡生长性能，生理紧迫反应和肠道健康的影响。

动物，材料和方法

- 264 只1日龄雄雏鸡(Cobb 500) 被分配到4个实验组。每组包括6个笼子和11只雏鸡，呈现一个2X2因子的实验设计(表1)，以400 ppm的推荐量补给agromed®ROI。

表 1: 实验设计方案



- 2 阶段饲养制度
 - 肉仔鸡阶段 (1-21 天)
 - 育成鸡阶段 (22-35 天)
- 研究为期 35 天
- 热紧迫状态:
 - 所有家禽都饲养在恒温 $22 \pm 1^{\circ}\text{C}$ 的热恒温条件下直到第21天。
 - 从第22天至第35天，在上午12:00至下午6:00之间，环境温度将升高到 $34 \pm 1^{\circ}\text{C}$ ，持续6小时。温度由 22 升到 34°C 所需时间约为30分钟。
 - 相对湿度介于65% 至 75%之间。

测量参数

- 生长性能
- 成活率
- 血清分析
 - 血浆铜蓝蛋白
 - α -1- 酸性糖蛋白
 - 热休克蛋白 70
 - 二胺氧化酶



结果

热紧迫范式的应用对本研究中所有观察到的参数产生了重大的影响，这也证明成功的通过本实验的挑战模型。

表 2: 增重和采食量取决于环境温度和 agromed®ROI 的补充。

日粮	饲养温度	增重(g)	采食量(g)
标准日粮	热恒温	2190.1 ± 18.4 ^a	3273.6 ± 40.5 ^a
	热紧迫	2010.2 ± 54.9 ^b	3119.7 ± 34.8 ^b
agromed®ROI	热恒温	2160.9 ± 22.4 ^a	3222.4 ± 36.5 ^{ab}
	热紧迫	2119.2 ± 29.4 ^a	3164.7 ± 26.5 ^b

平均值于同一列中在 $P < 0.05$ 无常见字母差异。

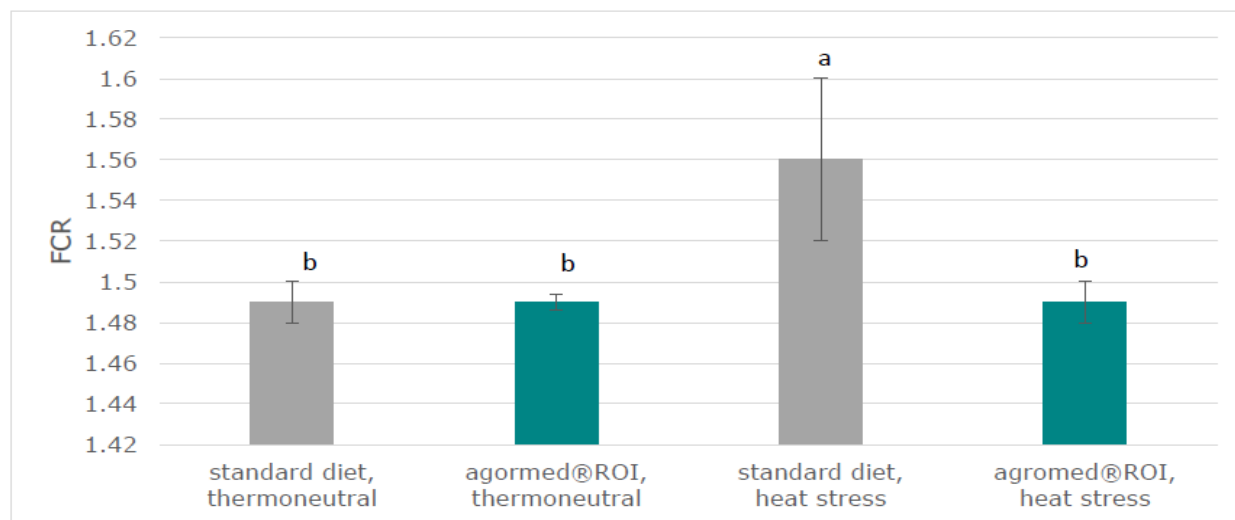


图 1: 热恒温或热紧迫条件下速长肉鸡的FCR取决于 agromed®ROI 的补充，在 $P < 0.05$ 无常见字母差异。

表 3: 热紧迫和日粮对死亡率的影响

日粮	1-21 天 (死亡率)	饲养温度	22-35 天 (死亡率)	1-35 天 (死亡率)
标准日粮	3%	热恒温	7% ^a	10% ^a
		热紧迫	10% ^a	13% ^a
agromed®ROI	3%	热恒温	0% ^b	3% ^b
		热紧迫	8% ^a	11% ^a

平均值于同一列中在P < 0.05 无常见字母差异。

表 4: 血浆铜蓝蛋白浓度(CPN; mg/ml) 取决于环境温度和 agromed®ROI 的补充; 平均值 ±

日粮	饲养温度		
	热恒温	热紧迫	P 值
标准日粮	2.24 ± 0.20 ^{bx}	3.53 ± 0.30 ^{ax}	0.0017
agromed®ROI	2.52 ± 0.21 ^{ax}	2.58 ± 0.32 ^{ay}	0.869
P 值	0.3417	0.0393	

a,b 平均值于同一行中在P < 0.05 无常见字母差异。

x,y 平均值于同一列中在P < 0.05 无常见字母差异。



表 5: α -1- 酸性糖蛋白(AGP; mg/ml) 的血清浓度取决于环境温度和 agromed®ROI 的补充 ; 平均值 \pm SEM

日粮	饲养温度		
	热恒温	热紧迫	P 值
热恒温	60.74 \pm 6.23 ^{bx}	102.77 \pm 7.81 ^{ay}	0.0001
agromed®ROI	62.78 \pm 7.21 ^{ax}	54.45 \pm 8.28 ^{ax}	0.434
P 值	0.818	0.0002	

a,b 平均值于同一行中在 P<0.05 无常见字母差异。

x,y 平均值于同一列中在 P<0.05 无常见字母差异。

结论

本研究的数据证明，补充 agromed®ROI 通过抗炎特性支持速长肉鸡肠道健康，并因此通过提高速长肉鸡的生长和成活率来补偿与热紧迫相关的生产损失。agromed®ROI 被认为是一种有益的饲料补充剂，因为它具有深远的经验优势：缓解热紧迫，改善成活率和肠道健康。

GALLIPRO® MS 改善肉鸡福利和生产性能

By Dorthe Sandvang, DVM, Phd, Innovation Manager, Chr. Hansen

应用 **GALLIPRO® MS** 在肉鸡进行试验以确定由多记录的两种益生菌菌株组合的效果。两千只雄雏鸡 (Cobb Slow) 被随机分配成4个处理组 (每组50只鸡, 10个重复组):

- 1) 处理组每天喂饲抗生素促长剂 (哈奎诺, HAL)
- 2) 处理组每天喂饲 **GALLIPRO® MS**, 400 克/吨 (GPMS)
- 3) 处理组每天喂饲益生菌 E, 500 克/吨 (PE)
- 4) 负控制组 (NC)

从第0天开始到试验结束, 所有饮食中都各自含有哈奎诺, **GALLIPRO® MS** 和益生菌E。每周收集动物学技术性能数据, 例如采食量, 体重, 饲料转化率和死亡率(%). 除了这些数据之外, 还分别在40和42日龄时应用近似检测法检查处理项目对行为和神经递质血浆浓度的影响。而后, 从每个处理组中抽取8%的肉鸡样本测试。

近似检测法: 评估人员进入鸡栏尝试触摸它们长达3分钟, 评估鸡只的相对反应。

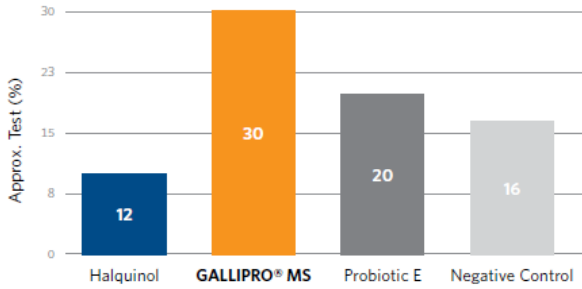
不同处理的动物学技术结果总结于下表1。

表1: 处理组在42日龄的动物学技术性能表现。

处理	体重(g) corr	FCR corr	死亡率 (%)
Halquinol	2772 ^b	1,62 ^a	2,6
GALLIPRO® MS	2878 ^a	1,56 ^b	1,9
Probiotic E	2854 ^a	1,58 ^b	3,0
Negative Control	2808 ^b	1,61 ^{ab}	3,2
P value	0,042	0,047	0,768

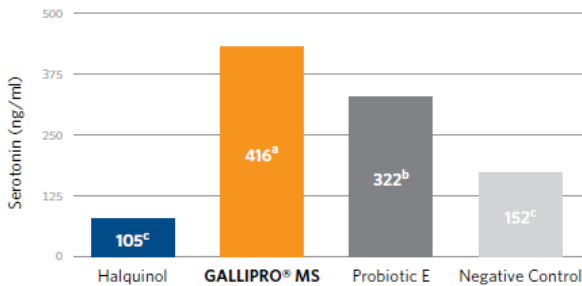
与NC和HAL组相比, 每日喂饲**GALLIPRO® MS**和益生菌 E可显著改善最终体重和饲料转化率 ($p < 0.05$; 两者均根据死亡率进行校正)。根据经验, 每天喂饲 **GALLIPRO® MS**的处理组表现出最低死亡率。关于行为, 通过近似检测法获得的结果如图1所示。

图1: 根据评估员在3分钟内可以触摸到家禽来评估鸡只的相对反应之百分比。



GALLIPRO® MS 处理组的家禽在近似检测法中反应最微弱，表示它们相对处于平静状态。相比之下，喂饲含有抗生素（HAL）日粮的家禽反应最活跃且最不平静。与GALLIPRO® MS 处理组相比，其余组的反应幅度偏高。

图 2: 第40日龄肉鸡的血液循环中血清素的浓度



将近似检测法的结果与血清素的产生相结合得出的结论是，每天喂饲GALLIPRO® MS 及其在肠道和微生物群中的作用，可使禽类在收成时更加平静。随着平静程度的提高，预计会出现更少的伤害及有更好的屠体品质。

结果总结

GALLIPRO® MS 显著且明确地影响动物学技术性能。

- 枯草芽孢杆菌菌株能够在整个肠道形成生物膜。这些生物在生物膜中共同工作，并能产生高浓度的消化酶使更多的营养物质被宿主吸收。此外，它们的存在竞争性的排除潜在的致病生物体附着于粘膜上。
- 同时，GALLIPRO® MS 中特定地衣芽孢杆菌菌株会产生一种名为地衣素的抗菌肽，可积极抑制梭菌属的生长。从而降低菌群失调或肠炎的风险。
- GALLIPRO® MS 显著且明确地影响肉鸡的行为和福利。

总的来说，这些结果开启了选择使用益生菌的新时代。事实证明，每天给商用肉鸡喂饲 GALLIPRO® MS 对生产性能和动物福利方面是有益的。