Trial results demonstrate BalanGut[™] LS's ability to balance health and performance

Table 1. MIC assay comparison of blend of short and medium chain fatty acid glycerides versus simple salts of butyric acid

Tested product	рН	S. typhimurium	C. perfringens	E. coli	Lactobacillus spp.
Monoglyceride blend		0.06%	0.01%	0.12%	No inhibition
Monoglyceride blend	7	0.06%	0.01%	0.12%	No inhibition
Sodium butyrate	6	2.8%	3.0%	2.9%	n.d.

Source: G. Tosi, L. Alborali. WPSA-48th National Congress of the Scientific Association of Aviculture, April 2011.

In vivo data.

Trial 1. German broilers challenged with a pathogenic strain of *C. perfringens*.

NE model was as follows:

Day 4 & 9: IBD vaccination

Day 14 & 16: Coccidia-Vaccination with Hipracox and Paracox-8 (10-fold of recommended dose)

Day 18, 19, 20: Oral challenge with Clostridia perfringens* (*virulent isolate)

Treatment group as follows:

No challenge group: No Challenge No feed additive added to the diet

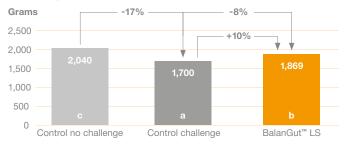
Challenge no treatment group: Challenged with *C. perfringens* no feed additive in diet

BalanGut[™] LS group: Challenged with C. perfringens supplemented with BalanGut[™] LS 3kg/MT feed

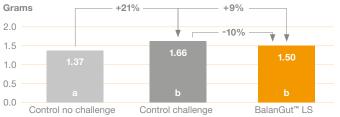
BalanGut[™] LS can ameliorate the negative impact of a strong NE challenge.

abc superscripts mean that values are statistically different (P<0.05; Tukey adjustment)

Body weight (day 36)



FCR (day 16-36)



Mortality (number of birds 16-36)

Number of birds



Choose the BalanGut[™] LS formulations that are right for you

Product name	Form	Application
BalanGut [™] LS P	Powder	Livestock Pigs, Poultry
BalanGut [™] LS L	Liquid	Livestock Pigs, Poultry

Also available for aquaculture

BalanGut™ AQ P	Powder	Aquaculture Fish, Shrimp
BalanGut™ AQ L	Liquid	Aquaculture Fish, Shrimp

Contacts

Asia/Pacific	North America
BASF South East Asia Pte. Ltd.	BASF Corporation
Animal Nutrition, Asia/Pacific	Animal Nutrition, North America
7 Temasek Boulevard, #35-01	100 Park Avenue
Singapore 038987	Florham Park, New Jersey 07932
Singapore	USA
Phone: +65-6337-0330	Phone: +1-800-527-9889
Fax: +65-6432-3298	Fax: +1-973-245-6766
E-mail: animalnutrition-asia-pacific@basf.com	E-mail: animalnutrition-north-america@basf.com

Europe, Africa, West Asia

BASF SE	BASF S.A.
Animal Nutrition, Europe	Animal Nutrition, South America
Chemiestrasse 22	Avenida das Nações Unidas 14.171 – 10th floor
68623 Lampertheim	04794-000 São Paulo SP
Germany	Brazil
Phone: +49-62160-28073	Phone: +55-11-2039-2292
Fax: +49-62160-28363	Fax: +55-11-2039-2344
E-mail: animalnutrition-europe@basf.com	E-mail: animalnutrition-south-america@basf.com

South America

This document, or any information provided herein does not constitute a legally binding obligation of BASF and has been prepared in good faith and is believed to be accurate as of the date of issuance. Unless expressly agreed otherwise in writing in a supply contract or other written agreement between you and BASF

(a) To the fullest extent not prohibited by the applicable laws, BASF EXPRESSLY DISCLAIMS ALL OTHER REPRESENTATIONS, WARRANTIES, CONDITIONS OR GUARANTEES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, WRITTEN OR 7 ORAL, BY FACT OR LAW, INCLUDING ANY IMPLIED WARRANTIES, REPRESENTATIONS OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, NON-INFRINGEMENT, AND ANY BEPRESENTATIONS, WARRANTIES, CONDITIONS OF GLARANTEES, ARISING FROM STATUTE. COURSE OF DEALING OR USAGE OF TRADE and BASE HERERY EXPRESSIVE EXCLUDES AND DISCLAIMS ANY LIABILITY BESULTING FROM OR IN CONNECTION WITH THIS DOCUMENT OR ANY INFORMATION PROVIDED HEREIN, including, without limitation, any liability for any direct, consequential, special, or punitive damages relating to or arising thereform, except in cases of (i) death or personal injury to the extent caused by BASF's sole negligence, (ii) BASF's willful misconduct, fraud or fraudulent misrepresentation or (iii) any matter in respect of which it would be unlawful for BASF' to exclude or restrict liability under the applicable laws;

(b) Any information provided herein can be changed at BASF's sole discretion anytime and neither this document nor the information provided herein may be relied upon to satisfy from any and all obligations you may have to undertake your own inspections and evaluations:

(b) BASF rejects any obligation to, and will not, automatically update this document and any information provided herein, unless required by applicable law; and (d) This document or any information provided herein must not be used for purposes of pharmaceutical registrations.

If you have any further questions or need additional support, please contact your BASF sales representative.

Packaging	Article number
25 Kg Paper bag 650 Kg Big bag	50624860 50624881
20 Kg Jerry can 1000 Kg IBC	50624857 50624858
25 Kg Paper bag 650 Kg Big bag	50625849 50625855
	50004700

D • BASF We create chemistry

BalanGut[™] LS The right balance for a healthy gut and sustainable wellbeing

The unique mixture of naturally occurring monoglycerides of short and medium chain fatty acids.

- Improves gut integrity

The science of sustainable feed that succeeds

animal-nutrition.basf.com

BalanGut[™] LS. The way it works

Balangut contains butyric, caprylic and capric acid monoglycerides, which have active impacts on the gut, resulting in:

- Cell proliferation and epithelium renewal
- Positive effects on tight junctions
- Promotion of peptide secretion
- A balanced enteric microbial population



BalanGut[™] LS

A healthy gut is the key to a healthy bird

Far more than being just a digestive organ, the gut is key to every aspect of birds' health, wellbeing and performance. BalanGut[™] LS is proven to play a vital role in this, restoring gut integrity, supporting beneficial bacteria, the bird's own immune defence system, without excessive use of antibiotics. So it can help you create feed that delivers for the animals, your business and your customers, while meeting the demands of the market and consumers. Sustainable feed that succeeds.



Fortifying intestinal health and supporting animal wellbeing

The unique mixture of naturally occurring monoglycerides of short and medium chain fatty acids in BalanGut[™] LS supports:

- Restoration and strengthening of intestinal health
- Intestinal health resilience
- Improved livability
- Sustained wellbeing
- Economic and ecological sustainability

BalanGut[™] LS is a sustainable solution that fosters gut balance and good health of the animal.

the small and large intestine.

Extra protection and ease of handling

The presence of ester bonds ensures:

- Non-corrosivity
- Heat stability
- Non-volatility
- Non-pungent smell
- A pH-independent action in the gut

Moving into cells

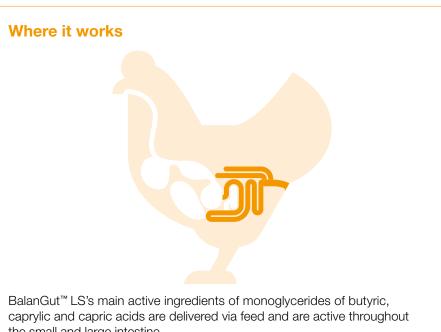
A 14 14 1

Interacting with enterocytes

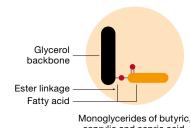
> Moving towards the portal vein

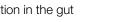
Strengthening

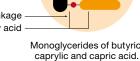
proteins



Monoglyceride

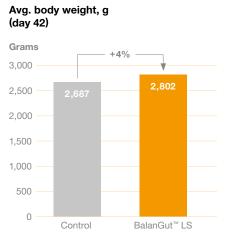






Results show BalanGut[™] LS's positive impacts on broilers

FCR



BalanGut[™] LS

Uniformity, CV%

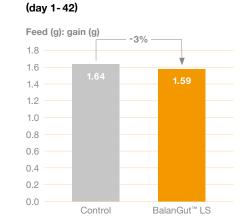
Control

(day 42)

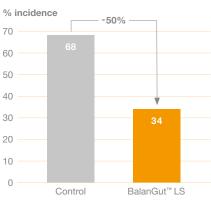
CV%

15

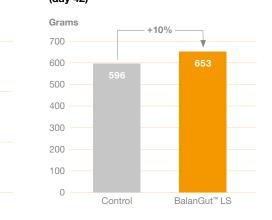
10



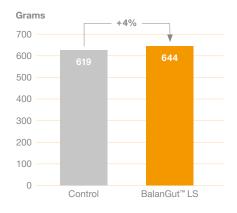
Foot pad lesions (day 42)



Carcass yield, leg weight, (day 42)



Carcass yield, breast meat, g (day 42)



Trial 2. Broiler chickens raised under optimal clean research conditions supplemented with BalanGut[™] LS at 500g/MT feed.

Internal reference: TID-93-19