Biodevas laboratoires

Advanced Natural Innovations

Ruminants

The Ruminant product range adapted to your activity

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DIGIX biodevas

Skin care

PIETIX Biodevas

The Solution for reducing the impact of bovine lameness

Brevet déposé n° 14 02250

PARLAC COUP'LAIT biodevas

Alternative Drying-Off Method

Distributors

FLORISEPT Biodevas

Management of health issues related to neonatal diarrhea

FLORICOL biodevas

PARASYNE Biodevas

Management of internal parasitic problems

DRAISTIM Biodevas

Stimulator of Hepatic Function
Immune Stimulator

The Ruminant product range adapted to your activity

IMUSYNE biodevas

Stimulation of the immune system

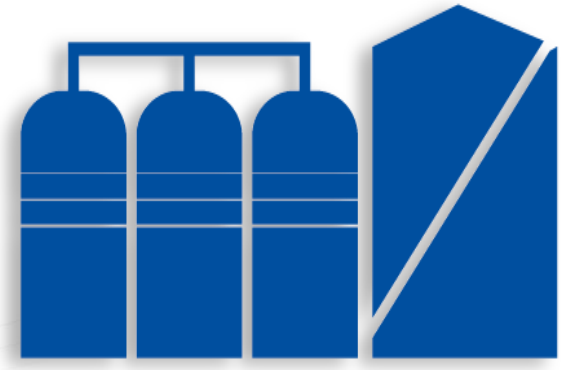
PIETIX Biodevas

The Solution for reducing the impact of bovine lameness

Brevet déposé n° 14 02250

DIURIC biodevas

Urinary comfort



GEMEO biodevas

The stabilisation of intestinal microbiota

Industrials

PARAMIX biodevas

Management of internal parasitic problems

DRAISTIM Biodevas

Stimulator of Hepatic Function
Immune Stimulator

DRAISTIM

Biodevas

Stimulant of the Hepatic Function
Immune Stimulator

Objectives

Mechanism of action

User Guide

Field Results

Objectives

➔ Restore hepatic function

➔Stimulate immunity

➔ Drain and detoxify emunctory organs (Liver, Kidney)

Indications

(derived from field observations)

➔Cow: after all medical treatment (worm killers, antibiotics,…).

➔Milking cow: during feed transition.

➔Bull (in fattening): when starting the finishing phase (3 months before slaughtering).

➔Calf: in support for the sick animal.

Phytogenic Extracts

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Foeniculum vulgare

Silybum marianum

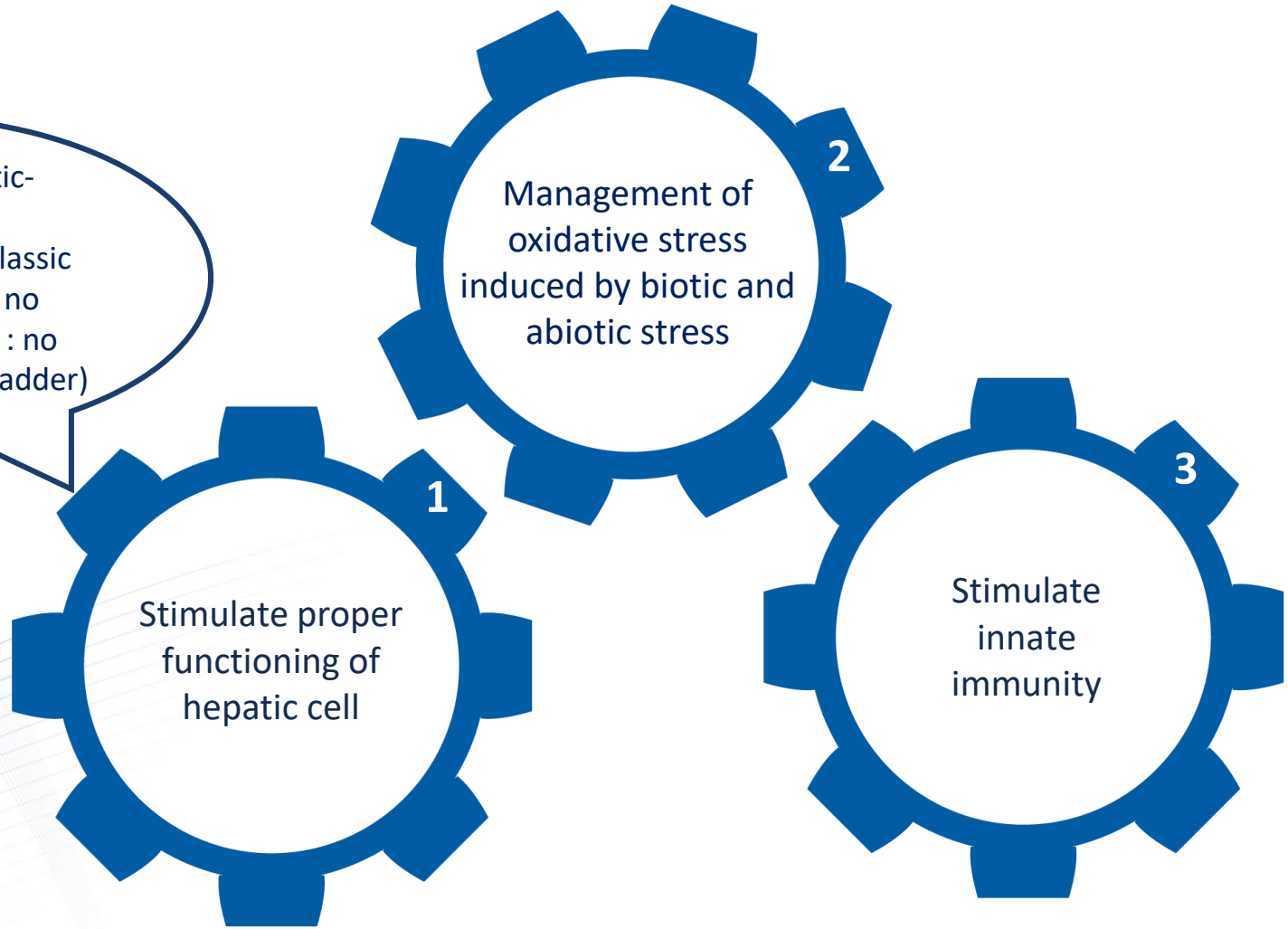
Vitex agnus-castus

And…

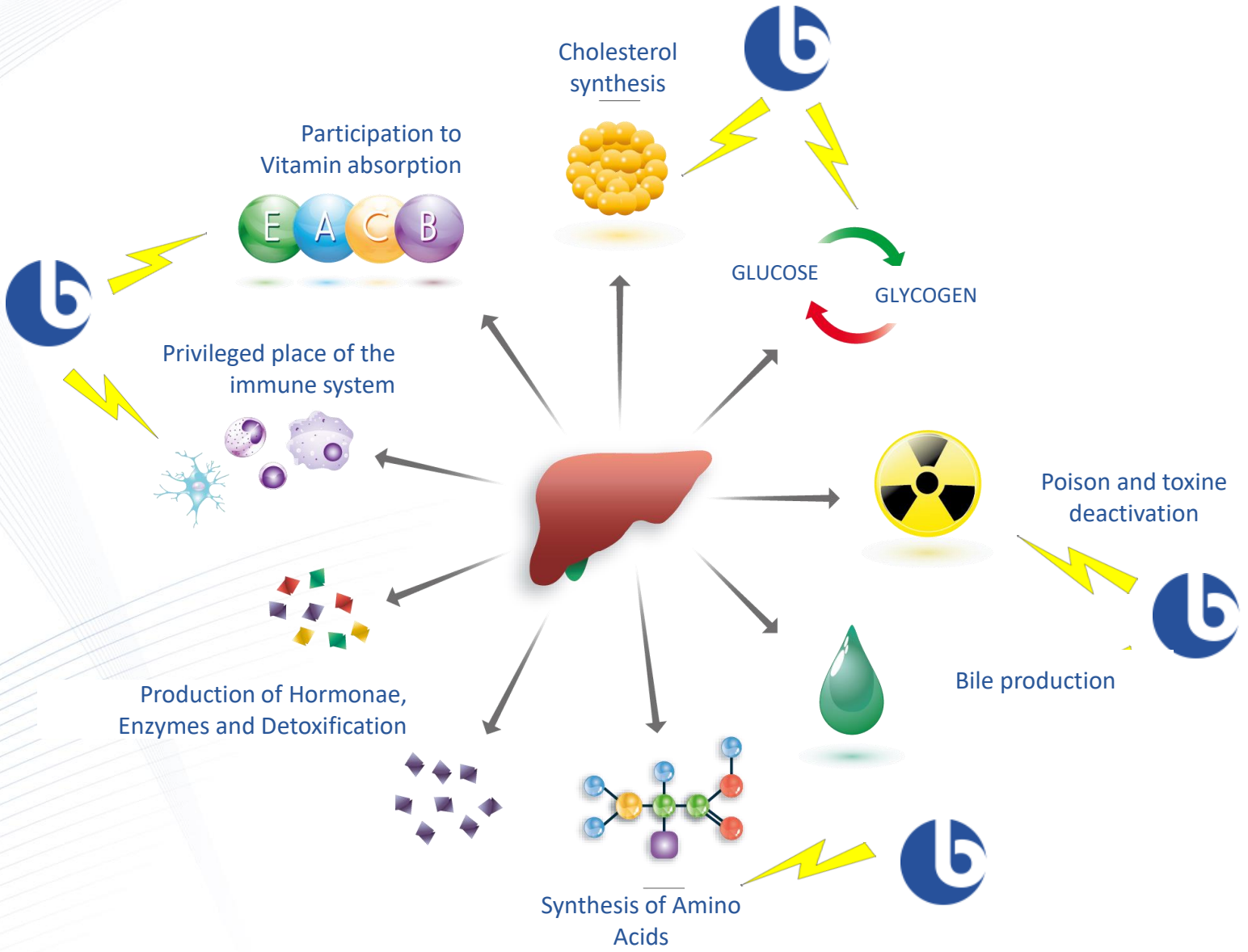
OH

A synergy of 3 actions

It is a “true” Hepatic-protector
(does not work as a classic “hepatic product”: no sorbitol, nor choline : no direct action on gall-bladder)

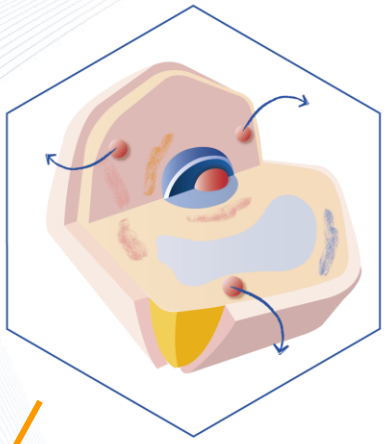


Liver functions



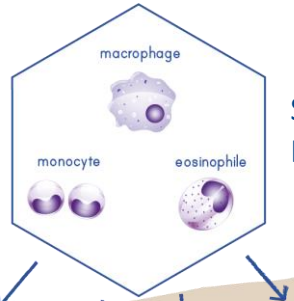
Mechanism of action

1



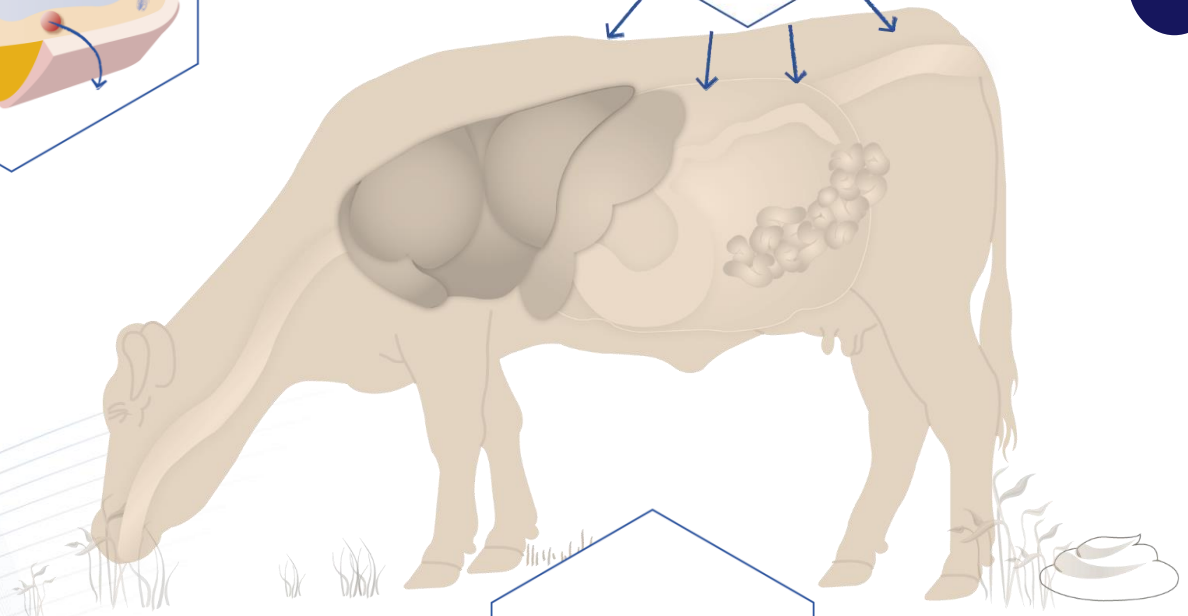
Stimulate hepatic enzymes and the elimination of toxins

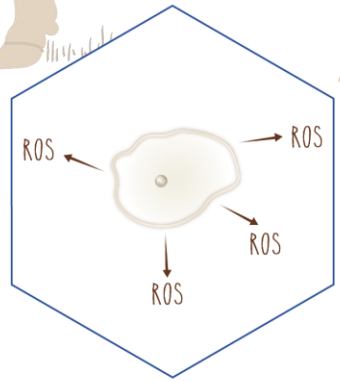
Restore the functionality of the hepatic cell



Stimulate the production of :
Interleukins, cytokines

3

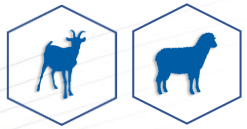




Stabilise the activity of :
SOD (Super Oxyde Dismutase)
GPX (Glutathion Peroxydase)

2

User Guide

 SL		• Adults : 30 ml / day, for 6 days • Calf : 15 to 20 ml / day, for 6 days
		• Adults : 15 ml / day, for 6 days
 GR		• Adults : 60g / day, for 6 days • Calf : 30 to 40 g / day, for 6 days
		• Adults : 30g / day, for 6 days

Additional information : During critical period, use sequentially for 2 days every 2 weeks after the recommended supplement

Benefits

➔HEALTH BENEFITS

- ✓ It is not a traditional « hepato » product
- ✓ It can be adapted to any critical period on farms
- ✓ Help to keep animals healthy

➔ECONOMIC BENEFITS

- ✓ No withdrawal period
- ✓ No palatability problems and simple to use
- ✓ Limit economic losses

University Study

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OBJECTIVE OF THE TRIAL	Show the efficacy of a phytogenic nucleus on hepatic structure
INFORMATION ON THE PRODUCT	Liquid product added to drinking water

Farmers :

Implementation of HEPADYN in 2 laying hen farms
Implementation of DRAINIX in 1 Broiler farm
Implementation of DRAINIX in 1 Turkey farm

Protocol :

Laying hens :

- 3 livers were taken as samples on the lots before supplementation,
- Supplementation with Hepadyn into drinking water at the dosis of 1 ml/liter for 3 days
- 3 livers were taken as samples on the same lots, 10 days after supplementation.

Broilers / Turkeys :

- 3 livers were taken as samples on the lots before supplementation,
- Supplementation with Drainix into drinking water at the dosis of 1 ml/litre for 2 days
- 3 livers were taken as samples on the same lots, 10 days after supplementation

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Analytical Method

Provider	**ONIRIS -** PASAP (SERVICE AND ANALYSES PROVIDER IN PATHOLOGICAL ANATOMY)
Samples	Livers on living animals provided by Biodevas laboratoire
Techniques	Histological sections after being formalin-fixed and paraffin-embedded, then microtomy and HES coloration (Haemalun – Eosin – Sulfate)
Required test	Comparison of histological sections before and after supplementation, according to the following criteriae : **- lesions on hepatocytes** **- lesions in the portal area** **- lesions on blood capillaries and Kupfer cells**
Pictures	Magnified x200

Tableau I- Identification des animaux, des prélèvements, dates de validation des lames HES

Lot	Espèces	1er prélèvement avant Hépadyn Date et âge	Numéros PASAP	2e prélèvement après Hépadyn Date et âge	Numéros PASAP
Domaine des Genêts P1 (41 Pierrefitte sur Sauldre	Poules pondeuses conventionnelles	Pas de prélèvement	Pas de prélèvement enregistré	2 avril 2016 58 semaines	2016-1685
Domaine des Genêts P2 (41 Pierrefitte sur Sauldre)	Poules pondeuses conventionnelles	5 avril 2016 62 semaines	2016-1678 (2 prélèvements) 2016-1724 (2 prélèvements)	14 juin 2016 73 semaines	2016-3091 (2 prélèvements) 2016-3133 (1 prélèvement)
Suard (41 Arville)	Poules Pondeuses plein-air	22 avril 2016 57 semaines	2016-2114 (2 prélèvements) 2016-2120 (2 prélèvements)	13 mai 2016 60 semaines	2016-2474 (2 prélèvements) 2016-2478 (1 prélèvement)
Elevage Houdouin Pierrick	Poulets	2 juin 2016 14 jours (avant Drainix)	2016-3147 (3 prélèvements)	15 juin 2016 28 jours (après drainix)	2016-3124 (trois prélèvements) 2016-3125 (trois prélèvements)
Elevage Houdouin Pierrick	Dindes	10 Avril 2016 (avant Drainix)	pas de prélèvement enregistré	6 juillet 2016123 jours (après drainix)	2016-3463 (deux prélèvements)

Table 1 : Identification of animals and sample schedule

Samples schedule and identification					
Lot	**Species**	**1st sample before Hepadyn**	**Sample identification number**	**2nd sample after Hepadyn**	**Sample identification number**
Farm Genêt (Building 1)	Conventional laying hens	No sample	-	04-02-2016 (58 weeks old)	2016-1685
Farm Genêt (Building 2)	Conventional laying hens	04-05-2016 (62 weeks old)	2016-1678 (2 samples) 2016-1724 (2 samples)	06-14-2016 (73 weeks old)	2016-3091 (2 samples) 2016-3133 (2
Farm Suard	Free range laying hens	04-22-2016 (57 weeks old)	2016-2114 (2 samples) 2016-2120 (2 samples)	05-13-2016 (60 weeks old)	2016-2474 (2 samples) 2016-2478 (1 sample)
Farm Houdouin (1)	Conventional broilers	06-02-2016 (14 days old)	2016-3147 (3 samples)	06-15-2016 (28 days old)	2016-3124 (3 samples) 2016-3125 (3
Farm Houdouin (2)	Conventional turkeys	No sample	-	07-06-2016 (23 days after Hepadyn)	2016-3463 (2 samples)

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Farm in Genêts : Laying hens

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Lot			Control lot (before treatment)	Lot after treatment
			Genêts Farm P2: Animals 2016-1678	**Genêts Farm P2: Animals 2016-3091**
Hepatocytes	Size		Normal	Normal
	Size homogeneity		Homogeneous	Homogeneous
	Nuclear		Regular	Regular
	Cytoplasm	Glycogen overload	0	0
		Lipid overload: intensity	2 to 3	1
		Lipid overload: type	Polymorph	microvacuolary
		Distribution of lesions	Panacinar	Panacinar
	Degeneration/Necrosis		0	0
Portal areas	Bile ducts	Hyperplasia of oval cells	0	0
		Hyperplasia of bile ducts	0	0
		Other lesions	0	0
	Inflammation periportal polymorph		2	0
	Hyperplasia of the residual lymphoid tissue		1 to 2	1
	Blood vessels	Congestion	2 to 3	1
		Leukostasis	0	0
Blood capillaries	Congestion		2 to 3	1
	Leucostasis		0	0
Kuppfer cells	Hyperplasia		0	0
	Overload		0	0
Other lesions			Moderated multifocal and fibrinoid hepatopathy on one sample	Moderated multifocal and fibrinoid hepatopathy on both samples : new moderated multifocal micro-hemorrhages on one sample

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Farm in Genêts : Laying hens

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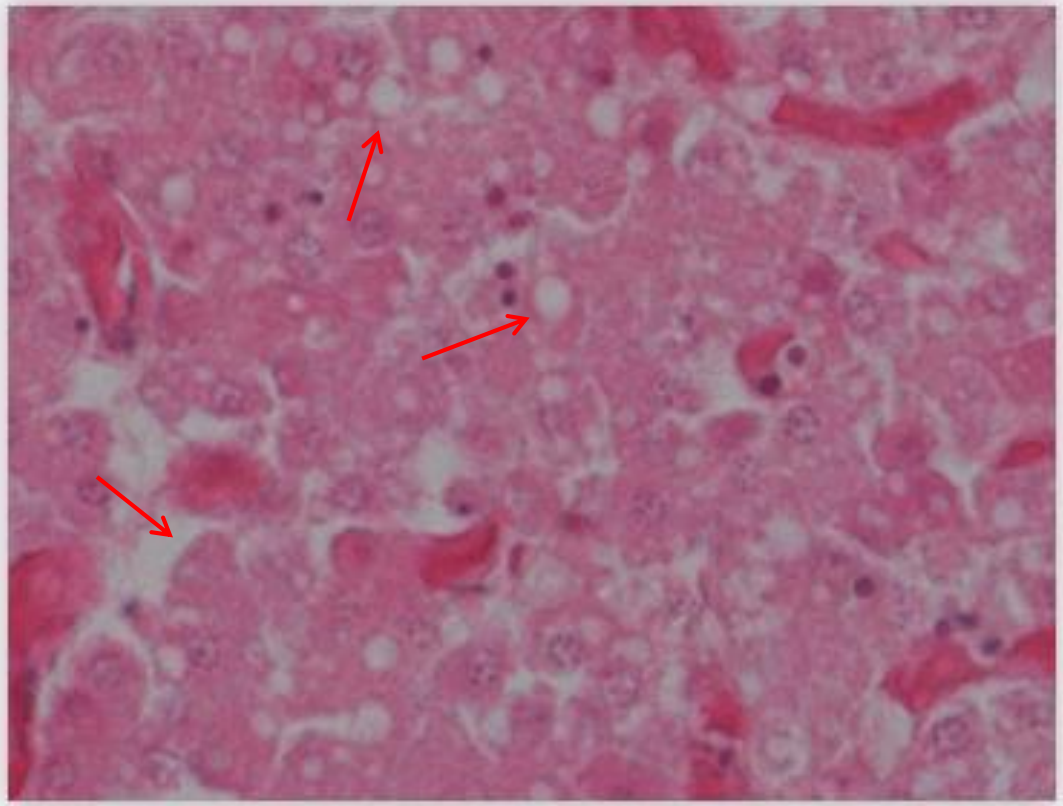
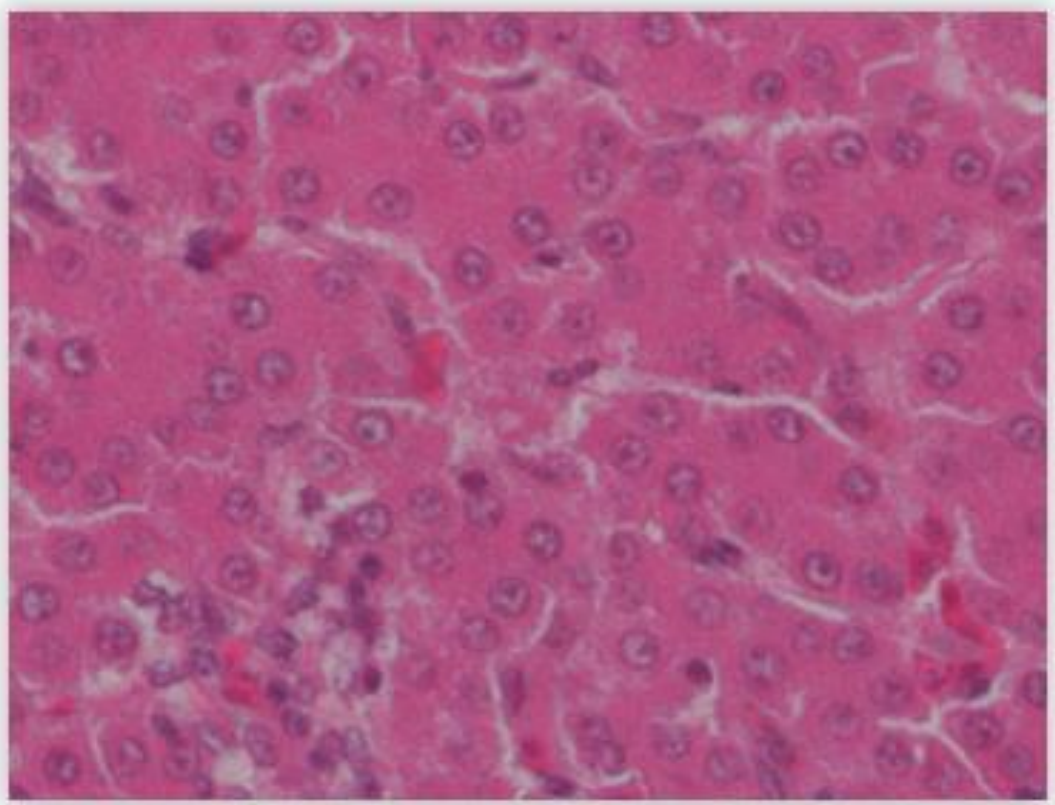
before



after



LH week 62

LH week 73

Lower hepatocyte vacuolization (lipid overload) after supplementation

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Suard farm : Laying hens

Oniris École Nationale Nantes Atlantique ~ biodevas

Lot			Control lot (before treatment)	Lot after treatment
			Genêts Farm P2: Animals 2016-1678	**Genêts Farm P2: Animals 2016-3091**
Hepatocytes	Size		Normal	Normal
	Size homogeneity		Homogeneous	Homogeneous
	Nuclear		Regular	Regular
	Cytoplasm	Glycogen overload	2	1
		Lipid overload: intensity	0	0
		Lipid overload: type	0	0
		Distribution of lesions	0	0
	Degeneration/Necrosis		0	0
Portal areas	Bile ducts	Hyperplasia of oval cells	0	0
		Hyperplasia of bile ducts	0	0
		Other lesions	0	0
	Inflammation periportal polymorph		0	0
	Hyperplasia of the residual lymphoid tissue		0	1
	Blood vessels	Congestion	2 to 3	1
		Leukostasis	0	0
Blood capillaries	Congestion		2 to 3	1
	Leucostasis		0	0
Kuppfer cells	Hyperplasia		0	0
	Overload		0	0
Other lesions			Moderated multifocal and fibrinoid hepatopathy on one sample and new light to moderated multifocal micro-hemorrhages on the same sample	New and light multifocal micro-hemorrhages

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Suard farm : Laying hens

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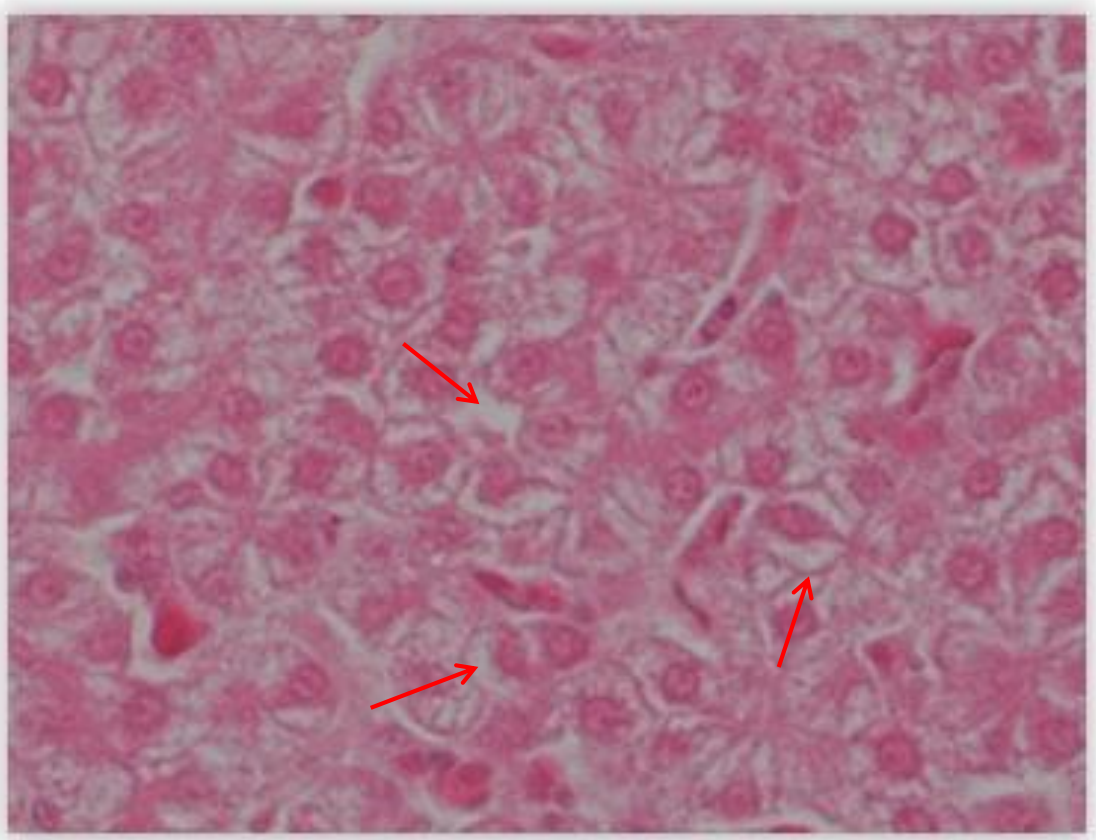
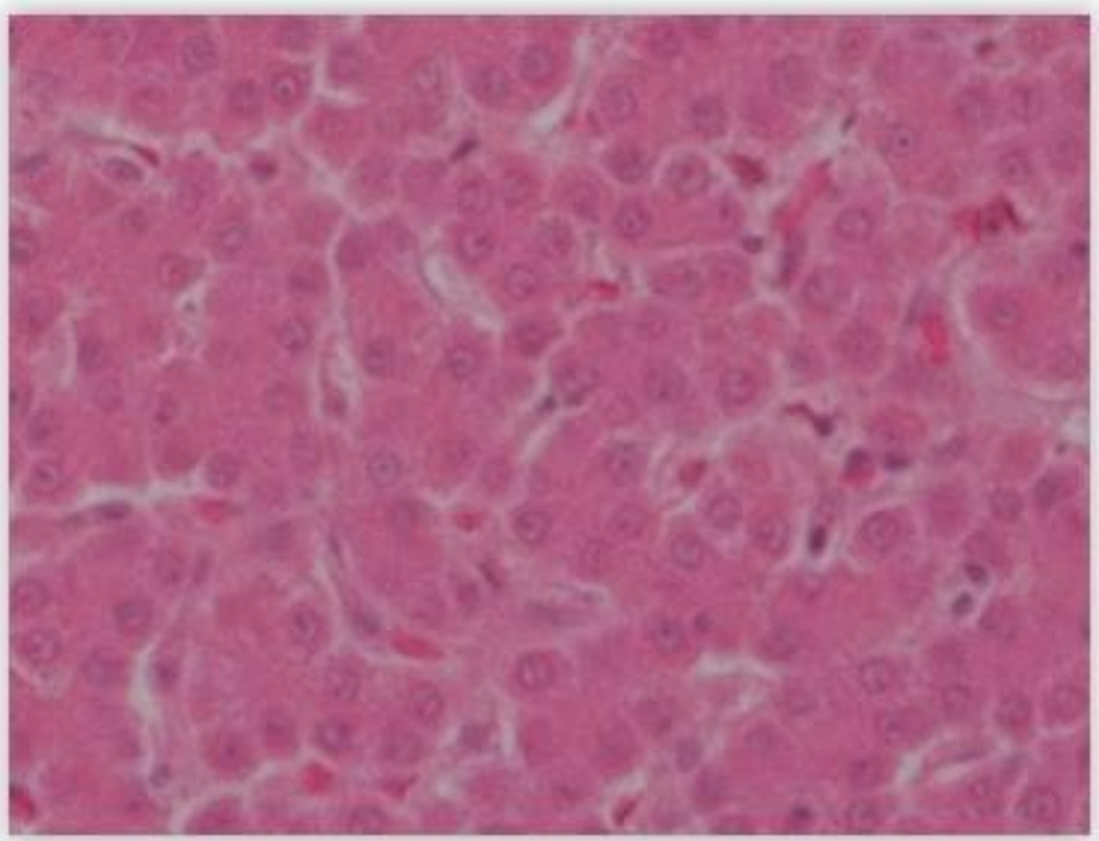
before



LH week 57

after



LH week 60

Lower hepatocyte vacuolization (lipid overload) after supplementation

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Houdouin farm : Broilers

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Lot			Control lot (before treatment)	Lot after treatment
			Genêts Farm P2: Animals 2016-1678	Genêts Farm P2: Animals 2016-3091
Hepatocytes	Size		Normal	Normal
	Size homogeneity		Homogeneous	Homogeneous
	Nuclear		Regular	Regular
	Cytoplasm	Glycogen overload	3	3
		Lipid overload: intensity	0	1
		Lipid overload: type	0	microvacuolary
		Distribution of lesions	0	Panacinar
	Degeneration/Necrosis		0	0
Portal areas	Bile ducts	Hyperplasia of oval cells	0	0
		Hyperplasia of bile ducts	0	0
		Other lesions	0	0
	Inflammation periportal polymorph		0	0
	Hyperplasia of the residual lymphoid tissue		1 on one animal, 0 on the others	1 to 2
	Blood vessels	Congestion	1 to 2	1 to 2
		Leukostasis	0	0
Blood capillaries	Congestion		1 to 2	1 to 2
	Leucostasis		0	0
Kuppfer cells	Hyperplasia		0	0
	Overload		0	0
Other lesions			new light to moderated multifocal micro-hemorrhages on one sample Low extramedullary hematopoiesis on one sample	0

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Houdouin farm : Broilers

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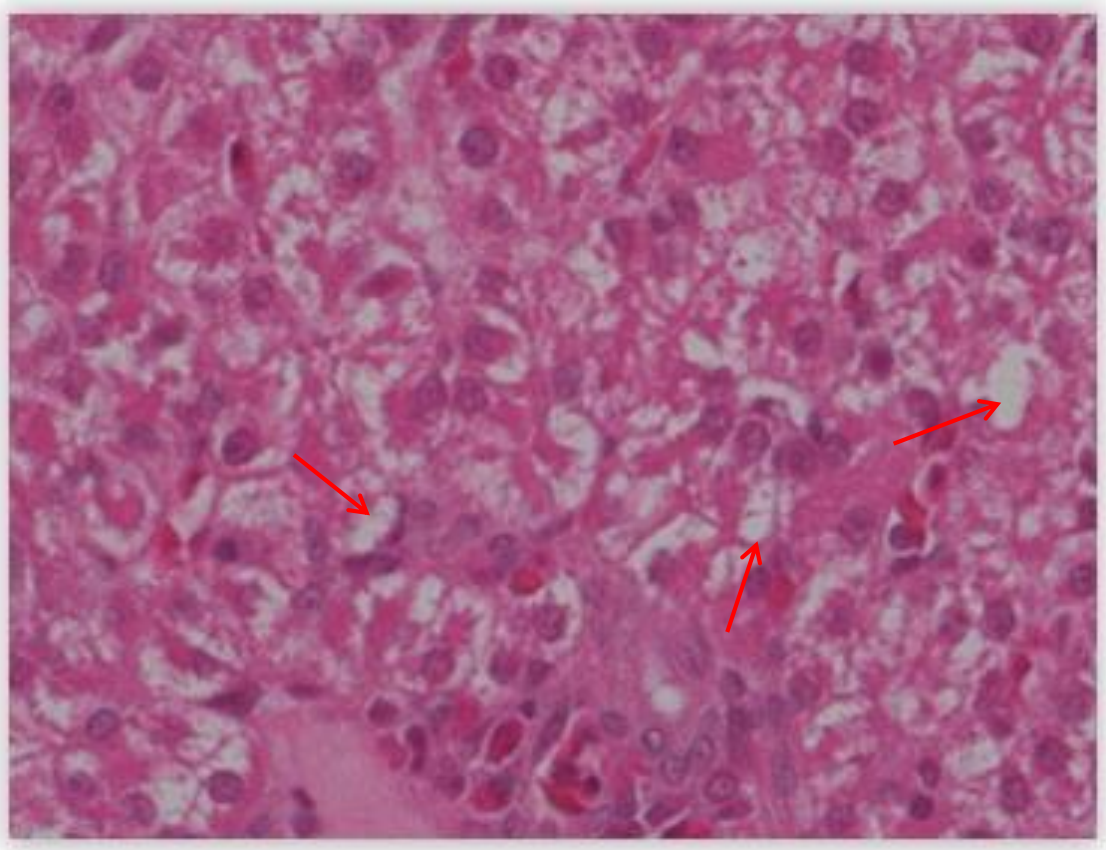
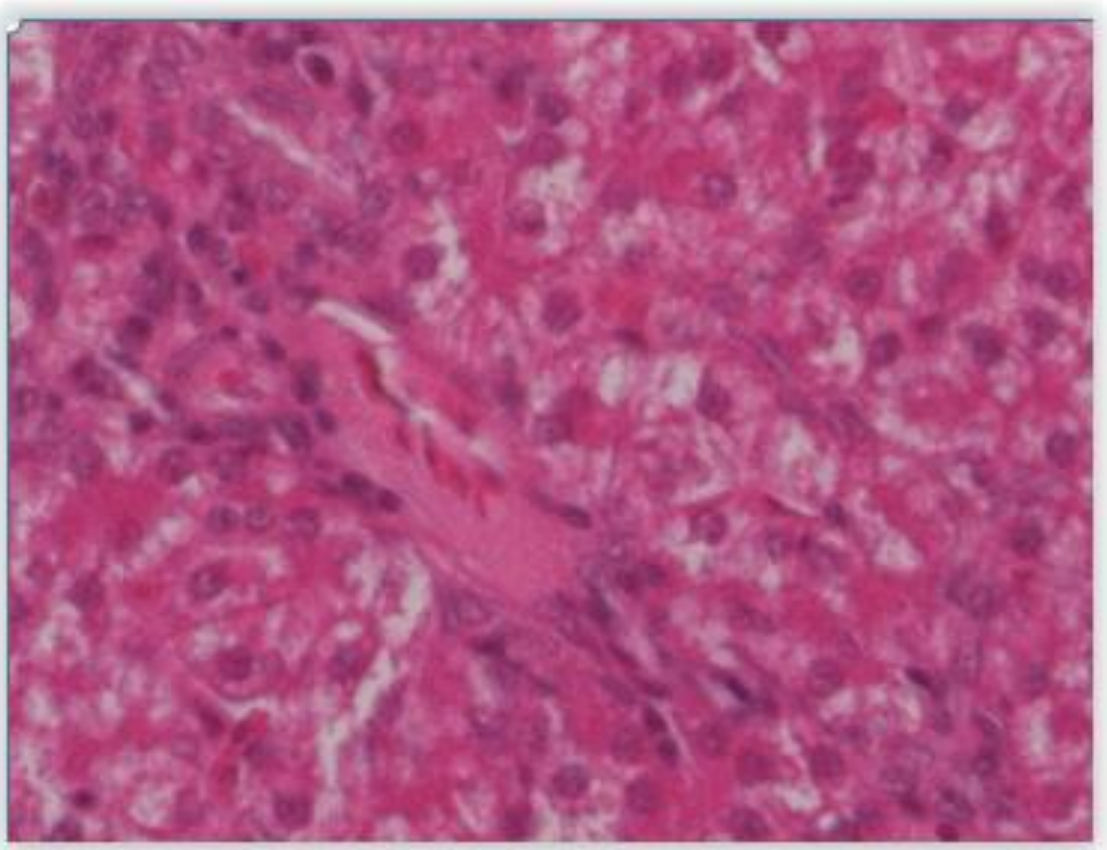
before



BR D14

after



BR D28

Lower lipid overload after supplementation

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Results

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- ✓ Histologically visible decrease of lipid overload on laying hens
- ✓ Decrease of glycogen overload on broilers, still visible at the end of the lot

⇒ Improve proper functioning of the liver and feed uptake

Conclusion

➔ Liquid products may be used in « Organic production »

May be used in organic production in accordance with Regulation (EEC) No 834/2007 et (EC) n°889/2008. Certified by FR-BIO-01.
This complementray feed can only be distributed to animals along with raw materials from organic productions.

➔ Without any bioresistance

➔ Developped according to ISO 22 000 / 2005 standard

➔ Simple, natural

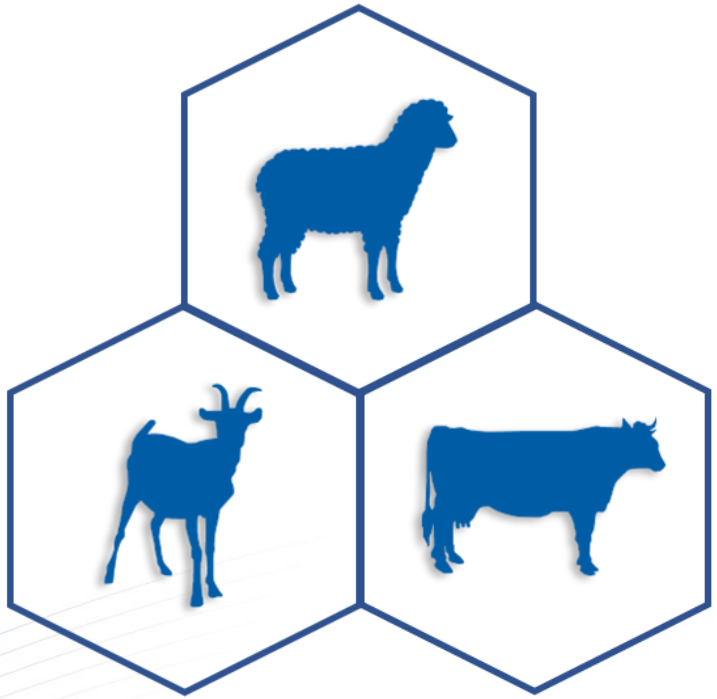
➔ No additives, No chemicals, No toxicity

➔ Without any residues, safe for humans, animals, plants…

➔ Unique Know-how from Biodevas R&D

➔ Solid products can be adapted to feed mill requirements

The end



But also …