



VETERINARY ONE STOP SOLUTION

Prevention of dehydration due to diarrhoea
in calves, foals, rabbits, piglets and other animals.



Treatment & prevention

of scours in calves, foals, rabbits, piglets and other animals.

Diseases in young farm animals resulting in a gastro-enteritis or diarrhoea are also known as scours. Infectious agents such as viruses and bacteria cause this condition and have the common property of causing a net loss of water and electrolyte imbalances from the body, via the gut. Actual death from scours results from dehydration, acidosis, toxæmia and loss of electrolytes. The severity of the disease is determined by the dose, type and pathogenicity of the infectious agent involved. The passive immunity of the newborn is determined by the quality and quantity of colostrum received.

Dehydration can be evaluated by pulling up the skin of the side of the neck. In a normal animal the skin snaps back into position quickly. In a dehydrated calf, the skin remains 'tented' according to the degree of dehydration. If the dehydration worsens, eyeballs sink away from the eyelids. Body temperatures below 38.05 °C and above 39.17 °C should be treated immediately.





Treatment:

Palliative treatment is based on fluid replacement by dosing with oral electrolyte solutions containing glucose and salt (NaCl), usually 2 litres, two to three times per day. Severe cases have to receive I.V. electrolyte drips. Parenteral or oral antibiotics are indicated under veterinary supervision.

IQ One Stop Solution has been developed to treat cases of scours in calves, foals and piglets by oral administration. IQ One Stop consists of an isotonic microcidal electrolyte solution, the active ingredient being hypochlorous acid (HOCl) (0.046%).

IQ One Stop Solution kills pathogens upon contact in the upper gastro-intestinal tract after dosing. The solution consists of a mixture of oxidants which inactivate bacterial toxins. This is in stark contrast to normal electrolyte solutions which do not have such capability. Treatment has to be repeated in unresponsive cases. Simultaneous administration of oral and/or parenteral electrolytes is recommended. Do not exceed the recommended dosage of 10 ml/Kg body mass.

Prevention:

Prevention of disease in animals that are reared in intensive rearing conditions is much more rewarding than treatment of individual animals.

Scours in pigs is very common after weaning. Very often a large percentage do not gain weight during the first two weeks and need to be treated individually. Note that the pigs on the LEFT do not show scours, whilst those on the RIGHT do.



The concept:

The concept is based on the elimination of pathogens being ingested by animals, either from water sources or from contaminated litter or food by the inclusion of a highly effective micro-biocide in the drinking water. The residual FAC value as the water enters the host should be sufficient to kill pathogens in the oral cavity, oesophagus, stomach and upper parts of the small intestine every time the animal drinks water. The threshold value of FAC in the drinking water has been determined as 15-20 ppm in a number of trials in various species of animals. Increasing the value above these levels is not advised as it may influence the taste of the water and possibly exert a negative effect on normal gut flora.

Hypochlorous acid (HOCl), contained in the anolyte or oxidant fraction in the process of Electro-Chemical Activation (ECA) of water is a proven compound. Trials conducted in several countries have indicated the benefits (see examples below).

In Pigs:

Trial 1: Effect of Anolyte on growth in healthy pigs

“A Comparison of the Effect of Anolyte and Effective Microbes (Kyusei EMTM) on the Faecal Bacterial Loads in the Water and on Fish Produced in Pig-cum-Fish Integrated Production Units”

(D. Hanekom, J.F. Prinsloo and H.J. Schoombie, Aquaculture Research Unit, University of the North, Private Bag X1106, Sovenga 0727, South Africa)

Treat	Stocking Dens/10m ²	Mean Mass Kg	Mean Final Mass	Mean Mass Gain	Feed Consumed	FCR
EM-A	10	18.6	87.0	68.4	1928	2.82
A	10	18.6	88.4	69.8*	1939	2.78
EM	10	17.7	83.1	65.4	1878	2.87
Cont	10	17.8	84.7	66.9	1906	2.85

* This was the first indication that anolyte had a beneficial effect on live mass gains in healthy pigs at a low stocking density, using different additives and even growth hormones and antibiotics from month two.

Trial 2: Effect of Anolyte on mortalities from birth to slaughter in a commercial piggery

(Farm Wagendrift, Piet Relief District, HRC Filter)

Mortalities	Trial 1		Trial 2		Mean	
	Treated	Control	Treated	Control	Treated	Control
Pre Wean	0/27	2/30	1/28	2/31	1/28	2/31
%	0	6.6	3.6	6.6	3.6	6.6
Post Wean	0/27	2/28	0/27	2/29	0/27	2/29
%	0	7.1	0	6.9	0	6.9
Grower	0/27	0/26	0/27	0/27	0/27	0/27
%	0	0	0	0	0	0
Overall	0/27	4/30	1/28	4/31	1/28	4/31
%	0	13.3	3.6	12.9	3.6	12.9

Note: The first indication that anolyte reduced mortalities from birth onwards.

Trial 3: A summary of 3 trials, United Kingdom Comparison of ADGs of growers and finishers on a commercial farm

(Meriden, in conjunction with Farm Energy Centre, Lemington Spa, Warwickshire UK)

Trial No	No Pigs	Treated	Control	Variance
1	296	1395	714	+681 g
2	40	1190	990	(95%)
3	1255	990	716	+200 g
	1591	1191	807	(20%)

Note: Pigs received anolyte as weaners in drinking water. After 12 weeks, they were fogged with a 10% anolyte mist (2-minute duration, every 20 minutes, day and night).

Trial 4: Summary of Mortalities in all UK Trials

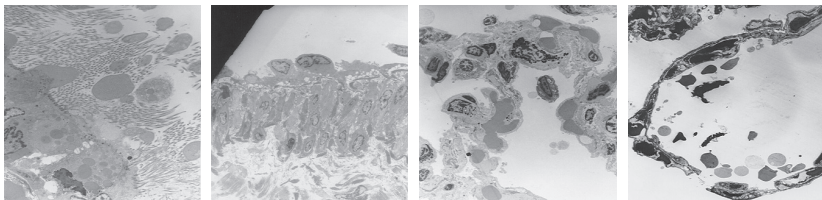
(Meriden, in conjunction with Farm Energy Centre, Lemington Spa, Warwickshire, UK)

	Treated	Control
Number of pigs	2928	3018
Mortalities	48	144
% Mortalities	1.64	4.77

Note: Mortality reduction evident in each of 6 trials conducted.

Trial 5: Electron microscopical comparison of lung tissue

(Wits School of Medicine)



Note: Respiratory cilia are preserved when Anolyte fogging is applied due to the oxidation of ammoniac. The natural defence system is therefore intact and pigs are less likely to contract respiratory disease.

Trial 6: EAW in Drinking Water, Denmark

(Trial conducted by the Danish Bacon and Meat Council, The National Committee for Pig Production, report No 578, November 7, 2002)

PRODUCTION RESULTS		Round 1		Round 1	
Group		Control	EAW	Control	EAW
Pens		15	15	16	16
Pigs in trial		375	375	408	408
First 3 weeks post weaning (4-6 weeks of age)					
ADG		121	126	116	141
FCR		1.96	1.87	1.94	1.72
Three week post weaning until transfer (7-12 weeks of age)					
ADG		514	511	555	567
FCR		1.79	1.81	1.82	1.83

Note:

1. Round 1 excessive levels of Fe++ in the drinking water neutralised the effect of Anolyte. Iron was removed from the drinking water – trial was repeated – Round 2.
2. The dosage rate of anolyte was sub-optimal:
 - First week 10%
 - Second week reduced by 2% per day
 - Third week no anolyte given.
3. No fogging was applied at any stage.

Trial 7: Murphy-Brown Test Results in Growers (N Carolina, USA) Farm 50773

	No Hogs	M Rate	Start Wt	ADG	GRCR	NFCR
TEST G (1)						
House 7	1071	2.7	49.5	1.47	2.665	2.534
House 8	1061	1.98	48.9	1.42	2.77	2.645
Ave	1116	2.35	49.2	1.45	2.717	2.589
CONTROL G						
House 4	940	5.11	51.7	1.55	2.566	2.499
House 5	1027	4.0	53.6	1.37	2.787	2.705
Ave	983	4.53	52.7	1.45	2.676	2.602

Comments:

1. Stocking density 13.5% higher in test group.
2. Starting weights 7.1% lower in test group.
3. Mortalities 92% lower in test groups.

Trial 8: Murphy-Brown Test results in Growers (N Carolina, USA)

	Liveability (%)	Age (d)	Wt sold (lbs)	ADG	NFCR
Control	94.59	129.32	237.26	1.48	2.57
Test G (2)	96.59	125.35	239.62	1.54	2.58
Difference	2.00	-3.97	2.36	.06	0.01
Control	93.22	138	246.85	1.549	2.59
Test G (3)	96.74	135	242.64	1.56	2.58
Difference	3.52	3	-4.21	0.012	-0.01

Comments:

1. A 50% reduction in mortality rates.
2. At the market, the hogs weigh 2 lbs more, reaching the market weight 4 days sooner.
3. ADG of test group 4% higher.



In Calves:

Disease prevention in individually reared dairy calves is based on the same principle described above.

In calves the approach is based on two concepts:

1. Using drinking water as a vehicle to provide a microcidal agent (hypochlorous acid (HOCl), present in anolyte) to eliminate pathogens present in the mouth cavity, throat, oesophagus and upper gastro-intestinal area every time the calf drinks water.
2. Teat and bottle hygiene. These items should be cleaned using an effective detergent and a disinfectant to guarantee absolute sterility of these items. Tests have shown that pathogens are readily transmitted to calves in this way.
3. Treatment of calves showing any symptoms of ill health, listlessness, soft smelly faeces and dehydration should be dosed with IQ One Stop at the recommended dose of 10 ml/Kg.

Each situation has to be assessed individually. For example, drinking water supply – bucket system or automated drinkers? In each, provide non-metal or plastic material. Dosage rate 10% of IQ One Stop Solution.

Active ingredients:
0.046% Hypochlorous acid (HOCl) and H₂O

Properties:
Isotonic Electrolysed
Saline Solution

Storage conditions:
Store below 25°C.
Use within 30 days
after opening the
container.

Registration No: V21196, Act 36 of 1946
Class: Mineral supplement for calves, foals and piglets

General Recommendations:

Suckling pigs:

- Because they consume mother's milk, water medication is of no use.
- When cases of ill thrift or diarrhoea are noted, the whole litter may be treated with 100% anolyte at 10 ml/Kg live weight.
- Repeat if necessary the following day.
- Fogging started and can be maintained in all farrowing pens.

Weaners:

- Weaners are extremely vulnerable to disease as passive immunity wanes and weaning stress takes its toll. ADGs over the first 14 days is generally low.
- The provision of 12% anolyte in drinking water will reduce cases of diarrhoea and mortalities and result in improved weight gains over this critical period.
- Drinking water medication should be provided until they are moved to grower pens.
- Fogging system can be maintained throughout.

Note unevenness of growth and diarrhoea in pigs coming from weaner pens.



Conclusion:

- The trials conducted thus far in pigs on various continents have shown that significant gains can be achieved by using ECA solutions in conjunction with OR as a replacement technology for AGP's and antibiotics in feeding rations.

Overall production parameters are improved such as: reduced mortality,

- improved daily gains, and improved FCR's, thus age to slaughter.

It is evident that both drinking water medication as well as fogging of the

- air space should be applied. The overall effect is synergistic. Biosecurity for airborne pathogens.

A few clinical aspects still need to be valued, such as the effect on sarcoptic

- mange.
- Control groups showed clinical signs of mange, whilst fogged groups had none.
- Isotonic Anolyte Lavage solutions may be useful in Artificial Insemination such as a uterine flush in sows and a sheath wash in boars. Isotonic Anolyte is not spermicidal.
- General drinking water medication (1%) for the elimination of water-borne pathogens, both viral and bacterial, is indicated.



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