



Betafin[®]

**NATURAL BETAINE AT ITS BEST
FOR EXCELLENT ANIMAL PRODUCTIVITY**

Danisco Animal Nutrition

Betafin®

The natural way to maintain performance and reduce animal production costs

More profit

- Maintain gut integrity during production stress
- Improve productive performance
- Increase carcass lean deposition

Lower feed costs

- Spare some added methionine and choline as methyl donors
- Reduce the dietary energy specification
- Consistent quality provides confidence at the feed mill

What is betaine and Betafin® natural betaine?

Betaine is a naturally occurring material found within the cells of many food sources, especially sugar beets. Betafin® by Danisco Animal Nutrition is our brand name for natural, high purity betaine.

How is Betafin® natural betaine produced?

Betafin® natural betaine is extracted from sustainable sugar beet molasses and vinasses (fermented molasses) using a patented chromatographic separation process.

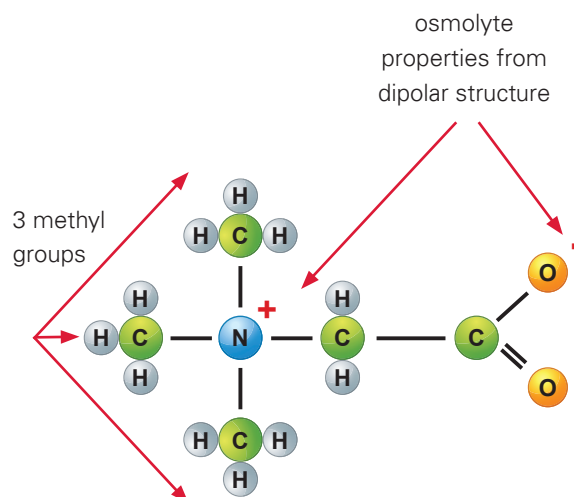
How does Betafin® natural betaine work?

Betaine has two important functions in animal nutrition as an **osmolyte** and as a **methyl donor** via transmethylation.

What is an osmolyte?

Osmolytes help maintain cellular fluid balance by interacting with water molecules. As a highly efficient osmolyte, Betafin® natural betaine accumulates in cells protecting them from osmotic stress and dehydration by maintaining their water and ion balance. Normal cell functions are consequently maintained during periods of osmotic stress. Maintaining water balance in cells is an energy consuming process. Thus Betafin® natural betaine spares valuable metabolic energy in the animal.

Betafin® natural betaine structure



What is a methyl group donor?

A methyl donor both contains and donates methyl groups for many essential biological functions e.g. synthesis of creatine and carnitine associated with generation of metabolic energy, DNA/RNA synthesis, muscle growth and immune cell function. The Betafin® natural betaine molecule contains 3 methyl groups and it can donate some or all of these more efficiently than other potential methyl sources in the feed such as methionine and choline chloride.



Betafin® natural betaine benefits to the animal

Through its osmolyte and methyl donor functions Betafin® natural betaine offers many benefits in animal production.

Maintain gut integrity at times of production stress

- Coccidiosis challenge, supporting the function of coccidiostats
- Reducing the negative effects of heat stress
- Increased nutrient absorption with osmotic challenge
- Improved gut structure and strength under post-weaning physiological stresses

Improve productive performance

- Sparing metabolic energy and/or methyl group donation can improve productive performance e.g. body weight gain, FCR
- Increased litter weight at weaning and litter size in sows
- Improved carcass lean deposition

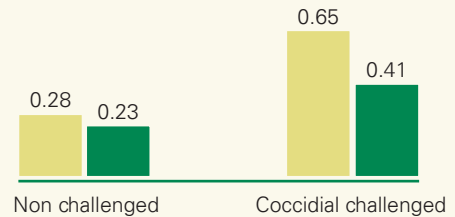
Reduce feed costs

- Replace some added methionine and all choline chloride supplements as methyl donors
- Reduce dietary energy specifications by sparing some maintenance energy costs of osmoregulation

Betafin® natural betaine benefits at the feed mill

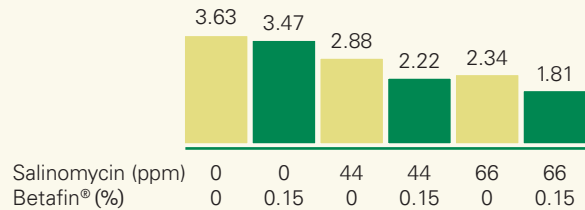
- A natural product – not chemically synthesised
- Consistent, guaranteed high levels of pure betaine
- Very low chloride content – no interference with osmolytic function
- Heat stability to 200°C
- Non-hazardous, safe in use
- Non-corrosive for equipment
- Non-aggressive in vitamin and mineral premixes
- Multi-species applications

Betafin® natural betaine helps maintain ($P<0.05$) a low crypt:villus ratio during coccidial challenge in broilers



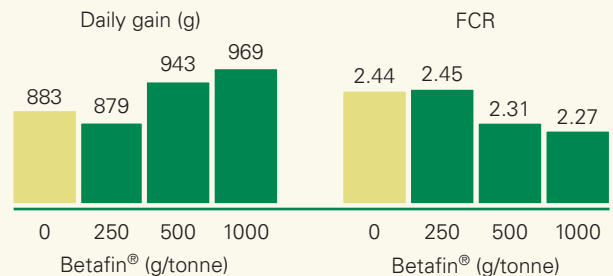
Kettunen et al (2001)

Betafin® natural betaine supports ($P<0.05$) the effectiveness of Salinomycin in reducing intestinal lesion score (scale 1 - 4) during coccidial challenge in broilers



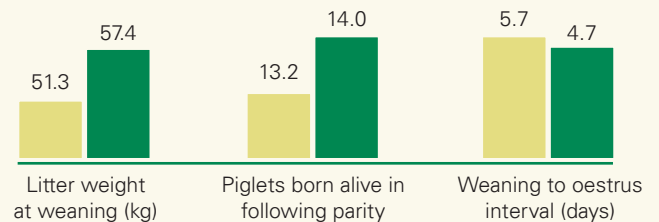
Augustine et al (1997)

Betafin® natural betaine significantly ($P<0.05$) increased daily gain and reduced FCR in growing/finishing pigs



Sijander-Rasi et al (2003)

Betafin® natural betaine significantly ($P<0.05$) increased litter weight at weaning and piglets born alive in the following parity, and reduced weaning to oestrus interval



Ramis et al (2011)

Control Betafin® natural betaine

Supporting services for Betafin® natural betaine

- Betacheck® software to calculate the accurate replacement of methionine and choline with Betafin® natural betaine without risk to broiler performance.
- Reassurance and reliability from high quality supporting research and development of Betafin® natural betaine. Over 100 technical reports from independent research organisations.
- Applications expertise of our technical and business support teams.

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Product form and application

Betafin® natural betaine is a multi-species animal feed additive ideal for mash or pelleted feeds or drinking water applications.

Product application

Dry (crystalline) Betafin® natural betaine – for in-feed applications.

Available in different grades (S1, S4 and S6) according to humidity conditions during storage.

Packed in 25 kg polyethylene lined multi-wall paper bags and 650 kg or 800 kg polyethylene lined polypropylene big bags with bottom valve.

Recommended usage rate up to 2 kg/tonne (0.2%) of finished feed.

Dry (crystalline) Betafin® BT natural betaine – for drinking water applications.

Packed in 25 kg polyethylene lined multi-wall paper bags. Recommended usage rates available on request.

Liquid Betafin® natural betaine – for in-feed applications.

Available in bulk.

Recommended usage rate up to 4 kg/tonne (0.4%) of finished feed.

Contact your Danisco Animal Nutrition representative or distributor for recommendations about your specific application needs

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To find your nearest local office or distributor visit www.animalnutrition.dupont.com

Danisco Animal Nutrition (Head office)
PO Box 777, Marlborough, Wilts, SN8 1XN, UK
Tel +44 (0) 1672 517777
info.animalnutrition@dupont.com
www.animalnutrition.dupont.com

