



BioNutria

DENMARK



AGRICULTURE · GOLF · GARDEN
PARK & STADIUM



2025

MICRONUTRIENTS FOR TOMORROW'S PLANT PRODUCTION



The TRIPLEX strategy – a
revolution in grain/plant
production
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Improved effects with Bio
pH Control for plant growth
regulators
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Improved effect in glypho-
sate when Bio pH Control is
added
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When nature and science go hand in hand.

Nutrients with the market's most unsurpassed plant uptake.

Quality doesn't cost, it pays!

Welcome to a world of micronutrients and additives that make a difference



After a historically wet growing season in 2023/2024, which in many locations has presented challenges and made field work difficult, the 2024/2025 season has gotten off to a much better and different start. Dry weather in the periods when winter crops were sown meant the winter crops got off to a good start so the conditions for a good year are certainly present. Not only in Denmark, but also in other European countries.

The export market represents an increasingly large part of our sales. Denmark is still our biggest market due to an increasing number of new customers, but we have built up a larger, highly skilled sales organisation in several European countries.

To ensure that all our customers get the absolute best service and advice, we have hired three new employees who will work exclusively with trials, training and marketing.

Field trials and demos are important

We commission many field trials and tests from Agrolab A/S, and even more field trials are scheduled for this season. The tests are carried out with our micronutrients, Bio pH Control and Bio-Ammoniumsulfat as well as foliar fertilisation with N and P.

In addition to the trials, demo plots have been established at multiple locations in Denmark and the rest of Europe.

We are ready to present the next generation of fertilisers and nutrient management guidelines

We have no doubt that foliar fertilisation will take off both strongly and very quickly.

As always, micronutrients and trace elements must be applied as foliar fertiliser repeatedly during the season.

But there are also great advantages to foliar fertilising with N and P – or any other nutrient that is needed, for that matter. Several of our customers have very positive experiences with, for example Bio NP^{Boost} and Bio NS 15-2/Bio NPS 15-2-2.

Foliar fertilisation has some immediate and significant advantages compared to nutrients applied on or in the soil, such as a much higher utility value of the nutrients applied, a high flexibility and a very fast effect. An additional and significant economic advantage is that the foliar fertiliser can be applied together with a herbicide or fungicide treatment. No additional application costs. In addition to the economic benefits, there are major environmental benefits.

I would like to send a sincere thanks to all customers who have shared their experience with our fertilisers and concepts with us – it is highly appreciated. In addition, a big thank you to the customers who have passed on their experiences to colleagues in the form of testimonials.

Finally, I would like to wish you all a very good year of growth.

Pleasant reading!
Ove Andersen

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By adding the right nutrients, formulated from the right raw materials in the right amount and at the right time, the plants become both healthier and stronger. This gives better resistance to diseases, a better ability to compete against weeds, as well as improved drought resistance and winter hardiness.



Product overview conventional farming



The market’s most easily absorbed micronutrients

All BioNutria’s products are formulated as true solutions with low pH values. To optimise both the absorption and effect of the added nutrients, all BioNutria’s micronutrients for conventional farming contain at least two additives and always contain a surfactant – with the exception of BioNutria Boron 150, BioNutria Iron 75 and BioNutria Cobalt 30.

BioMangan 180 NS

	Total N	CO(NH ₂) ₂	S	Mn	Density	pH
g/l	24.31	24.31	106.25	178.04		
Weight percent	1.70	1.70	7.43	12.45	1.43	6.07

BioMangan 170 NS^P

	Total N	CO(NH ₂) ₂	P2O5	S	Mn	Density	pH
g/l	24.82	24.82	18.25	104.97	179.58		
Weight percent	1.70	1.70	1.25	7.19	12.30	1.46	0.46

BioCrop Opti^{XL}

	Total N	CO(NH ₂) ₂	S	Mn	MgO	Cu	Zn	B	Fe	Mo	Density	pH
g/l	21.93	21.93	74.18	25.80	38.70	1.29	1.29	2.58	12.90	0.013		
Weight percent	1.70	1.70	5.75	2.00	3.00	0.10	0.10	0.20	1.00	0.01	1.29	2.70

BioCrop Opti^{ML}

	Total N	CO(NH ₂) ₂	S	Mn	MgO	Cu	Zn	B	Fe	Mo	Density	pH
g/l	20.06	20.06	37.64	11.80	17.70	1.18	2.36	2.12	11.80	0.012		
Weight percent	1.70	1.70	3.19	1.00	1.50	0.10	0.20	0.18	1.00	0.01	1.18	2.50

BioCrop Opti^P

	Total N	CO(NH ₂) ₂	P2O5	S	Mn	MgO	Cu	Zn	B	Fe	Mo	Density	pH
g/l	22.44	22.44	16.50	75.24	26.40	39.60	1.32	1.32	2.64	13.20	0.013		
Weight percent	1.70	1.70	1.25	5.70	2.00	3.00	0.10	0.10	0.20	1.00	0.01	1.32	1.77

BioCrop Potato^P

	Total N	CO(NH ₂) ₂	P2O5	S	Mn	MgO	Cu	Zn	B	Fe	Mo	Density	pH
g/l	20.91	20.91	15.38	47.36	12.30	24.60	1.23	2.46	1.11	12.30	0.012		
Weight percent	1.70	1.70	1.25	3.85	1.00	2.00	0.10	0.20	0.09	1.00	0.01	1.23	1.66

BioCopper 70

	Total N	CO(NH ₂) ₂	S	Cu	Density	pH
g/l	20.06	20.06	35.64	70.80		
Weight percent	1.70	1.70	3.02	6.00	1.18	3.21

BioZinc 115

	Total N	Zn	Density	pH
g/l	24.00	115.00		
Weight percent	1.67	7.99	1.44	5.68

BioPotassium 100

	K2O	Density	pH
g/l	100.80		
Weight percent	9.00	1.12	6.50

BioMolybdenum 120

	Total N	Mo	Density	pH
g/l	20.00	119.00		
Weight percent	1.64	9.75	1.22	9.79

BioMagnesium 50

	Total N	CO(NH ₂) ₂	S	MgO	Density	pH
g/l	21.25	21.25	68.63	52.13		
Weight percent	1.70	1.70	5.49	4.17	1.25	5.32

BioSelenium 5

	Se	Density	pH
g/l	5.00		
Weight percent	0.45	1.11	10.78

BioNutria Boron 150

	B	Density	pH
g/l	150.00		
Weight percent	11.03	1.36	8.10

BioNutria Iron 75

	Fe	Density	pH
g/l	75.00		
Weight percent	6.50	1.20	1.63

BioNutria Cobalt 30

	Co	Density	pH
g/l	30.00		
Weight percent	2.78	1.081	6.01

STARTER FERTILISER

Bio P11

	P2O5	Density	pH
Weight percent	11.00	1.23	0.99

Bio NP 5-8

	Total N	CO(NH ₂) ₂	P2O5	Density	pH
Weight percent	5.00	5.00	8.00	1.19	1.51

FOLIAR FERTILISER

Bio NS 15-2

	Total N	CO(NH ₂) ₂	NH ₄	S	Density	pH
Weight percent	15.00	12.90	2.10	2.40	1.14	5.94

Bio NS 15-2^{Carbon}

	Total N	CO(NH ₂) ₂	NH ₄	S	Density	pH
Weight percent	15.00	12.90	2.10	2.40	1.14	5.94

Bio NPS 15-2-2

	Total N	CO(NH ₂) ₂	NH ₄	P2O5	S	Den-sity	pH
Weight percent	15,00	12,90	2,10	2,00	2,40	1,18	2,00

Bio NPS 15-2-2^{Carbon}

	Total N	CO(NH ₂) ₂	NH ₄	P2O5	S	Den-sity	pH
Vægt procent	15,00	12,90	2,10	2,00	2,40	1,18	2,00

Bio NP^{Boost}

	Total N	P2O5	Density	pH
Weight percent	5.04	10.00	1.44	1.62

ADDITIVES

Bio pH Control

	Density	pH
Weight percent	1.23	0.37

Bio Ammoniumsulfat

	N	S	Density	pH
Weight percent	8.20	9.30	1.23	6.20

Product descriptions

BioMangan 180 NS

A premixed, high-quality manganese solution. It also contains nitrogen and sulphur. .

BioMangan 170 NS^P

The market's only manganese agent with built-in pH control. Used with hard water and when mixing with boron. Outstanding mixing properties.

BioCrop Opti^{XL}

Special formula that is rich in manganese, magnesium and sulphur. Can be used in all crops to prevent nutrient deficiencies.

BioCrop Opti^P

BioCrop Opti^P can be used in all crops as a treatment to prevent nutrient deficiencies. Has pH-lowering effect

BioCrop Opti^{ML}

Special formula for corn, onion and vegetables. High zinc content.

BioCrop Potato^P

Special formula for potatoes. Rich in zinc and phosphorus.

BioCopper 70

Effectively prevents copper deficiency in all crops. Special formula rich in directly plant-available copper and sulphur.

BioZinc 115

Highly concentrated zinc fertiliser. Effectively prevents zinc deficiency in all crops.

BioPotassium 100

Potassium solution that quickly replenishes low potassium levels in all crops.

BioMolybdenum 120

Highly concentrated molybdenum fertiliser. Effectively prevents molybdenum deficiency in all crops.

BioMagnesium 50

A high-quality magnesium solution formulated on the basis of immediately plant-available magnesium. Also contains sulphur.

BioSelenium 5

A high-quality selenium solution that increases the selenium content in grass. Effectively prevents selenium deficiency in grass-eating animals.

BioNutria Boron 150

Liquid boron fertiliser for boron-dependent crops such as corn, rape and beets. Optionally, supplement with BioCrop Opti^{XL}/Opti^P to cover the need for other micronutrients. Unique blendability. Always remember to lower the pH.

BioNutria Iron 75

Highly concentrated iron fertiliser. Effectively prevents iron deficiency in all crops.

BioNutria Cobalt 30

Highly concentrated. Prevents cobalt deficiency. Used for all crops that have symbiosis with tuber bacteria and for forage crops for ruminants

STARTER FERTILISER

Bio P11

Starter fertiliser for potatoes and corn. Pure phosphorus fertiliser for use when planting. Can be mixed with seed dressing. Requires equipment that tolerates low pH fertiliser.

Bio NP 5-8

Liquid starter fertiliser for potatoes and corn. Trial mixture recommended for mixing with liquid seed dressing. Requires equipment that tolerates low pH fertiliser.

FOLIAR FERTILISER

All BioNutria foliar fertilisers can be applied with ordinary spray nozzles.

Bio NS 15-2

Liquid pH-optimised foliar fertiliser.

Bio NS 15-2^{Carbon}

Liquid pH-optimised foliar fertiliser. With sucrose as a carbon (C) source..

Bio NPS 15-2-2

Flydende pH-optimeret bladgødning med fosfor.

Bio NPS 15-2-2^{Carbon}

Liquid pH-optimised foliar fertiliser with phosphorus.

Bio NP^{Boost}

Liquid pH-optimised foliar fertiliser with phosphorus. With sucrose as carbon (C) source.

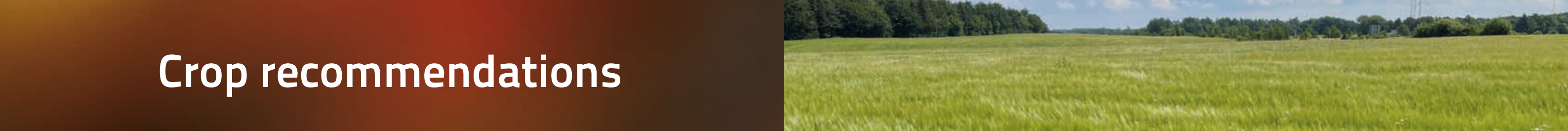
ADDITIVES

Bio pH Control

Bio pH Control is a unique product composed of no fewer than four active ingredients. The product resolves problems with hard water simply, economically and extremely effectively. The plants' absorption of pesticides and micronutrients is increased. Often up to 30–50% improved effect of plant protection products, and even more.

BioAmmoniumsulfat

BioAmmoniumsulfat contains additives and is pH-lowered to avoid ammonia evaporation. It has been used for years to increase the effect of glyphosate, MCPA and certain growth regulators etc. National trials have documented an increased effect of glyphosate and MCPA of up to 30%.



Crop recommendations

Our micronutrients are used as a guarantee against micronutrient deficiencies of any kind. Therefore, our general recommendation is to use 2–3 litres of BioCrop Opti^{XL}/BioCrop Opti^P and 1–2 litres of BioMangan 180 NS/BioMangan 170 NS^P in all crops 3–6 times during the growing season. Often supplemented with 1–2 litres of BioNutria Boron 150. See all our recommendations at bionutria.eu. Contact our Agro Team for further information.



GRAIN – winter crop	BioMangan I /ha	BioNutria Boron 150 I/ha	BioCrop Opti ^{XL/P} I/ha
October: st. 12-14	1		
November: st. 14-21	1		2
Early spring: st. 25-30	1		2
April: st. 31-32	1		3
May: st. 32-39 Triplex strategy	1	1	3
June: st. 51-59			3

GRAIN – spring crop	BioMangan I/ha	BioNutria Boron 150 I/ha	BioCrop Opti ^{XL/P} I/ha
April: st. 14-21	1		2
May: st. 31-32	1		2
May: st. 32-39 Triplex strategy	1	1	3
June: st. 51-59			2

RAPE – winter crop	BioMangan I/ha	BioNutria Boron 150 I/ha	BioCrop Opti ^{XL/P} I/ha
April: st. 16	2	1	2
May: st. 19	1	2	2
May: st. 30	1	1	3
June: st. 50-57			3

RAPE – spring rape	BioMangan I/ha	BioNutria Boron 150 I/ha	BioCrop Opti ^{XL/P} I/ha
April: st. 16	2	1	2
May: st. 19	1	2	2
May: st. 30			2
June: st. 50-57			2

SUGAR BEET	BioMangan I/ha	BioNutria Boron 150 I/ha	BioCrop Opti ^{XL/P} I/ha
May: st. 12-15	1	1	2
June: st. 30	2	2	2
July: st. 48		2	2
August: st. 48 (1st fungicide application)			2
August: st. 48 (2nd fungicide application)			2

CORN	BioMangan I/ha	BioNutria Boron 150 I/ha	BioCrop Opti ^{ML} I/ha
May: st. 15-16	1	1	3
June: st. 34	1	1	3
July: st. 53			3

POTATOES	BioMangan I/ha	BioCrop Potato ^P I/ha	Bio NS 15-2 I/ha
3 weeks after germination	1	3	
For the 1st fungicide application	1	3	
For the subsequent 4–5 fungicide applications		3	
When late fertilisation is needed (repeat if needed)			45

TRIPLEX strategy – a revolution in grain production

In cereal crops, BioNutria’s TRIPLEX strategy gives uniform, healthy crops with good straw stiffness and often significant additional yields of 250 to 2,500 kg/ha.

The visible effects on the plants are: 50% larger leaves, larger ears with larger grains and a big effect on the plants’ straw stiffness. Therefore, the TRIPLEX strategy has now become a part of our standard recommendations for grain production.

BioNutria’s TRIPLEX strategy consists of 1 litre of BioNutria Boron 150, 1 litre of BioMangan180 NS/170 NS^P and 3 litres of BioCrop Opti^{XL}/Opti^P per ha added in one allocation during the grain’s stretching phase.

The application can take place in connection with a fungicide or herbicide treatment, so there are no extra application costs.

The results are impressive, and the net treatment benefit is often very high.



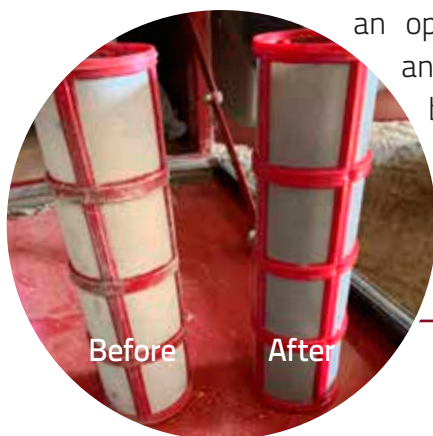


Reliable effect of your plant protection products

Bio pH Control

If you have issues with hard water and high pH in the spraying liquid, Bio pH Control is the solution; it can often reduce the amount of pesticides used by 30–50%. Some plant protection products are very unstable at a pH above 8. This applies in particular to products used in beet production and pesticides. Others have an optimal pH between 5 and 5.5 or as low as 3 and below.

Contact our Agro Team for further information.



Generally, between 0.1–0.3 litres of Bio pH Control per 100 litres of water should be used. The exact dosage depends on the hardness and pH value of your water. Therefore, we recommend that you buy a pH meter so you can easily determine the exact amount to be added.

Bio pH Control is the market's absolute cheapest and most efficient product for lowering the pH in spray liquids.

At the same time, Bio pH Control ensures that your sprayer is always clean, and you can enjoy no longer having problems with clogged nozzles and filters. The sprayer is as clean as a new one on the inside.

Getting started with pH Control

If you have hard water, there will surely be deposits of calcium carbonate (CaCO_3) and magnesium carbonate (MgCO_3) in the sprayer. Even if you use a cleaner. Most, if not all, sprayer cleaning products are alkaline, and they do not clean/dissolve CaCO_3 and MgCO_3 deposits. *Bio pH Control effectively dissolves all CaCO_3 and MgCO_3 deposits in the sprayer. It is therefore very important to follow the cleaning procedure below before spraying.*

Cleaning the sprayer

1. Pour 200–400 litres of water into the sprayer
2. Add 0.5 litres of Bio pH Control per 100 litres of water and let it circulate in the sprayer for 30 minutes
3. Remove nozzles and filters – then spray out the liquid
4. Repeat the process if necessary

After cleaning, the sprayer is as clean as new on the inside.

How to use Bio pH Control when spraying Bio-Nutria micronutrients and pesticides

1. Pour the desired amount of water in the sprayer and start mixing
2. Add the recommended dose of Bio pH Control – usually between 0.1–0.3 litres/100 litres of water
3. Add BioNutria micronutrients (except boron)
4. Add pesticides (Betanal can also be used without problems)
5. Add boron, if necessary

Contact our Agro Team for further information.

Optimal solubility

Solubility is one of the issues on which we get many questions.

Generally, our products mix well into the planned treatments.

However, there are limits to how many and which components you can mix. The water hardness also means a great deal for the miscibility.

We refer you to bionutria.eu, where you will find mixing tests and further instructions for mixtures.

Good advice on mixtures

- Always follow our instructions for mixing order – you will find it at bionutria.eu
- Boron and manganese in the same spray requires a pH reduction
- Never blend more than two plant protection agents
- Make a test mixture in a glass or bucket if in doubt
- Have plenty of water in the sprayer before blending
- Stir while mixing, and spray immediately
- Create a fixed routine for maintenance and cleaning of the sprayer and filters

Bio NP^{Boost} is unique

Bio NP^{Boost} is a ready-to-use foliar fertiliser with a high concentration of phosphorus, which, in addition to having a high nitrogen effect, also effectively prevents phosphorus deficiency in corn, grain crops, rapeseed and grass as well as vegetables, for example potatoes, where a very fast-acting phosphorus fertiliser is needed.



Tests

Foliar fertilisation with nitrogen – fertilise your plants, not the soil

New effective foliar fertilisers

Bio NS 15-2 and Bio NS 15-2^{Carbon} are well known in our product range. This year, we have introduced Bio NPS 15-2-2 and Bio NPS 15-2-2^{Carbon}.

Bio NPS 15-2-2 is a liquid foliar fertiliser, to which phosphorus and potassium are added, in addition to nitrogen. The formulation is pH-optimised to avoid nitrogen evaporation.

The nitrogen forms in the fertiliser provide fast and safe absorption of the added nutrients, while the formulation provides the lowest possible risk of fertiliser burn.

Bio NPS 15-2-2^{Carbon} adds the same properties as Bio NPS 15-2-2 with added sucrose.

Fertilise your plants – not the soil

At the Danish 2023 Plant Congress, Jan K. Schjoerring, professor at Aarhus University, presented the advantages of foliar fertiliser in comparison with soil fertiliser. You can read more about the trial at bionutria.dk

The foliar fertiliser concept provides good opportunities to target and avoid nutrient deficiencies. This creates the best conditions for optimising the economics of crop production while providing significant environmental benefits.

Conclusion – Jan K. Schjoerring

The nitrogen efficiency kg grain/kg N is significantly higher in leaf fertilisation than when the fertiliser is applied to the soil.

If done correctly, reduced intake of nitrogen can be achieved. This is particularly relevant with high prices on fertilisers and taxation of CO₂.

The potential of foliar fertilisation

- Foliar fertilisation should only be carried out with a relatively small amount of nitrogen per application, 10–20 kg N/ha, to minimise the risk of loss. At the same time, it will reduce the risk of leaf scorching
- Larger amounts of nitrogen should be added at intervals of several days
- A surfactant should be added to the solution to reduce surface tension and ensure optimal leaf contact and optimise the nutrient uptake of the leaves
- Furthermore, coformulation with other nutrients, addition of a carbon source and lowering of the pH of the solution can increase the efficiency and prevent ammonia loss.

Bio NS 15-2, Bio NS 15-2^{Carbon}, Bio NPS 15-2-2 and Bio NPS 15-2-2^{Carbon} are the only foliar fertilisers on the market that fully meet the above recommended composition.

Better growth-regulating effect in rye when Bio pH Control is added to plant growth regulators.

In 2024, Agrolab A/S carried out plant trials for Bio-Nutria. The trials investigated whether a greater effect could be achieved by adding Bio pH Control to Growth regulator 1 and Growth regulator 2, respectively.

The trials were performed with a logarithmic sprayer with a starting dose of 2 kg/ha for Growth regulator 1 and 1 L/ha for Growth regulator 2 and were conducted in growth stage 31–32.

The data plot in Figure 1 to the right shows that there is an effect improvement (height reduction in relation to untreated spray liquid) of up to 40% at a given dosage, expressed as a reduction in height at a given dose. For example, 0.35 kg Growth regulator 1 per ha is required to reduce the height by 5 cm without the addition of Bio pH Control, whereas with Bio pH Control, only 0.25 kg/ha Growth regulator 1 is required to achieve a reduction of 5 cm. For a reduction of 10 cm, 0.48 kg/ha is needed without Bio pH Control and 0.35 kg/ha with Bio pH Control, corresponding to a 15% improvement in dosage effect.

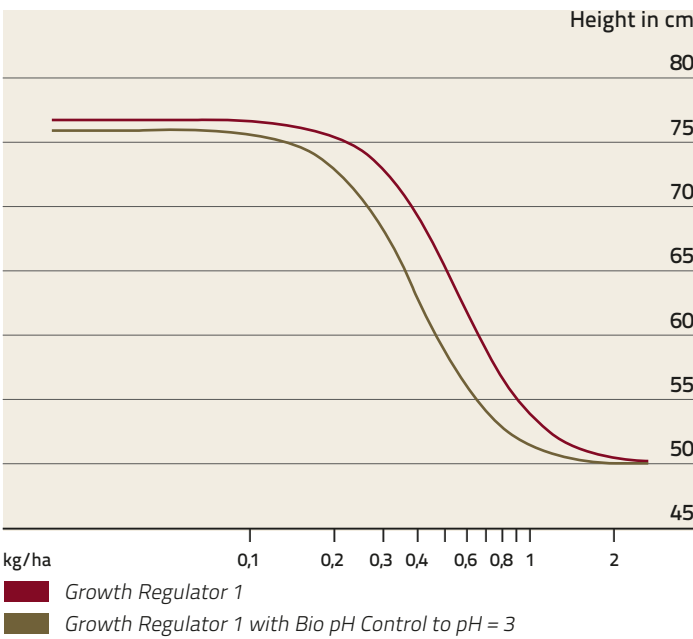
Figure 2 shows crop height at different dosages of Growth regulator normally used in agriculture.

In the testing with Growth regulator 2 (Figure 3 below), an even greater improvement of over 40% is seen when Bio pH Control is added. In fact, balancing the spraying liquid with Bio pH Control for Growth regulator 2 has increased the effect so much that it almost corresponds to the effect of Growth regulator 1 with added Bio pH Control.

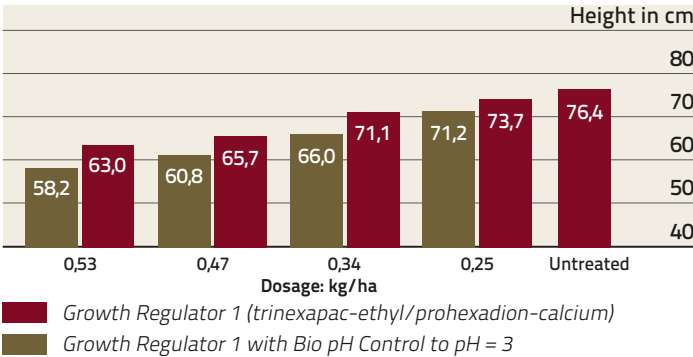
Figure 3 shows plant height at selected dosages of Growth regulator 2 normally used in agriculture. Growth regulator 2 barely works at dosages below 0.20 L/ha unless Bio pH Control is added.

This year's trial with Bio pH Control in rye shows that there is potential for great improvement in the effect by adding Bio pH Control to two of the best growth regulators on the market. In 2025, we will therefore follow up on the experiments in rye and make the same treatments in both wheat and rye.

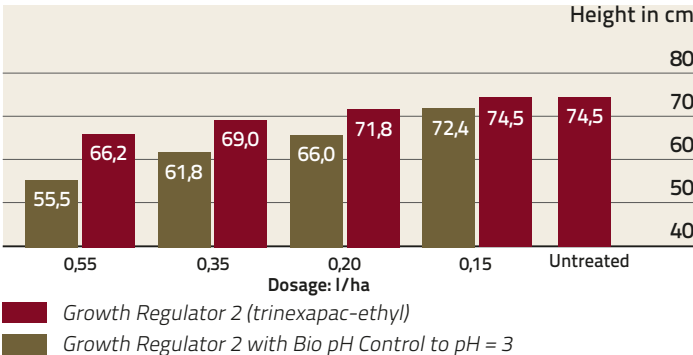
Growth regulation in rye – Figure 1
Improved effect by adding Bio pH Control to pH = 3 in growth regulation of rye using Growth Regulator 1.



Growth regulation in rye – Figure 2
Crop height in rye at applied dosages of Growth Regulator 1 with and without the addition of Bio pH Control to pH = 3



Growth regulation in rye – Figure 3
Crop height in rye at applied dosages of Growth Regulator 2 with and without the addition of Bio pH Control to pH = 3.



¹ Growth Regulator 1 (trinexapac-ethyl/prohexadion-calcium)
² Growth Regulator 2 (trinexapac-ethyl).



Impressive effect of plant protection products – when adjusting pH with Bio pH Control

We make it easy for the individual farmer to achieve improved effects when the pH of the spraying liquid is balanced with the addition of Bio pH Control.

It is not a question of the allocated spray quantity but rather how well it is absorbed by the plants.

Some pesticides are rapidly degraded by a high pH spraying liquid. Bio pH Control is a unique pH-lowering product composed of no fewer than four active ingredients.

Greater effect when adding Bio pH Control

The demo field with spring barley and ryegrass was prepared in 2023 by KHL in Lunderskov near Kolding

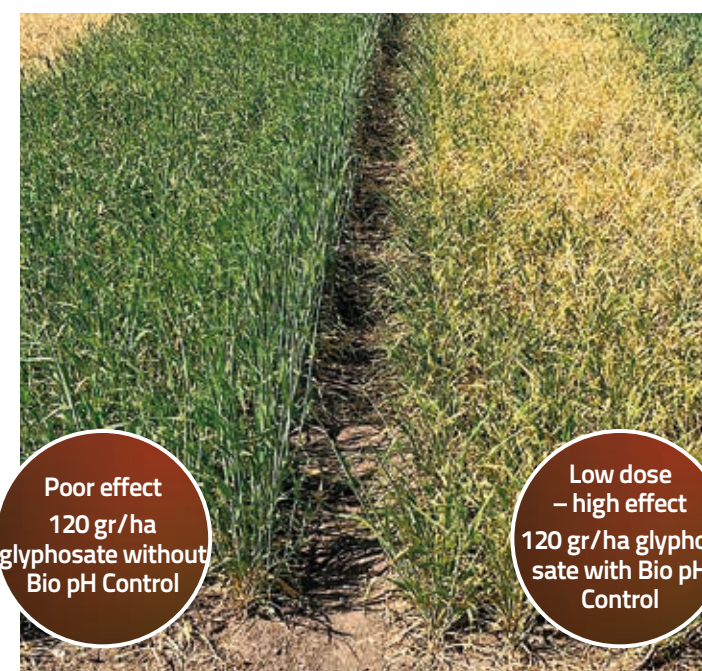
and glyphosate was applied in different doses from 120 g/ha to 480 g/ha – both with and without the addition of Bio pH Control.

Roundup Flex XXL was used at a dosage of one litre per hectare. Here the pH of the spraying liquid was lowered to below 3 with Bio pH Control.

The field was established by KHL on April 20. The treatments were given on 31 May and shown on 13 and 14 June 2023.

With a focus on effect in relation to dose, the demo shows a clearly improved effect in glyphosate treatments by adding Bio pH Control as already at 120 g of glyphosate per ha.

The image shows from left to right the demonstration field plots with different doses of glyphosate, with and without added Bio pH Control: 480 g glyphosate per ha, 480 g glyphosate per ha + Bio pH Control, 240 g glyphosate per ha, 240 g glyphosate per ha + Bio pH Control, 120 g glyphosate per ha, 120 g glyphosate per ha + Bio pH Control, 60 g glyphosate per ha, 60 g glyphosate per ha + Bio pH Control, and untreated.



If you have hard water, and use Bio pH Control according to our instructions, you can:

- Achieve 30–50% improved effect by adding Bio pH Control
- Achieve a fast and impressive effect of glyphosate and reduce glyphosate use by up to 50%
- Eliminate clogged nozzles – even when using boron or Betanal. The sprayer is always clean.

In short, Bio pH Control should always be added when using hard water.

The trial was carried out by KHL.



Investor allowed for expansion of operations

A family farm grew from 1,100 ha to 1,900 ha when the Boel Oestergaard brothers partnered with an agricultural investor.

Kristian Boel Oestergaard took over operations at Mariesminde from his parents back in 2013. In 2024 he formed the public limited company Mariesminde Landbrug A/S together with his brother Laust and agricultural investor Soeren Rasmussen. The farm has expanded significantly since then and now spans 1,900 ha with a livestock production of 2,400 sows, 80% full-line, with fattening pigs for sale to Tican.

According to Kristian, the advantage of including a third party with an agricultural background is that everyone in the ownership group understands what it means to run a farm.

‘All three of us are highly invested and thus take ownership of all decisions,’ he says.

The big decisions are taken together.

‘When all three of us believe in an idea, it is more likely that it really is a good idea than if I only follow my own gut feeling.’

‘When an external investor comes along, the company does not suddenly have unimaginable amounts of resources. The money must be borrowed on the free market, with all that entails in terms of budgets,

credit ratings and collateral. But it provides extra cover,’ Kristian explains.

In terms of the role distribution, Laust is responsible for everything pig-related, and Kristian is responsible for the rest.

They are very happy to have brought Soeren into the company. He allows for differences and is a great sparring partner.

Although Mariesminde has grown explosively, its size is irrelevant to the three partners.

‘We study the opportunities that arise and act accordingly. Investments have to make sense. Business growth must be within the core area, production of pigs and crops, and geographically located on Salling,’ Kristian explains.

The trio is very conscious of the fact that their company is a focal point in the local area and has always worked to preserve the company culture that Laust and Kristian’s father created in his time.

‘For example, we insist on shopping locally to the extent possible. We buy groceries locally, work with a local ventilation company and use local craftsmen, while supporting our local associations,’ says Kristian, emphasising that it is natural for them to give the



greatest possible consideration to neighbours and that they always strive to hire local employees.

BioCrop Opti^{XL} is always in the sprayer

At Mariesminde, barley, rye and wheat are grown, as well as a crop rotation of spinach, broad beans, rape-seed and rye grass (lawn variety).

The plant production is operated independently of the pig production, with a focus on optimal yield. However, all manure is used for plant production and the grain produced is used to feed the pigs.

The three farmers have a passion for stable cultivation and for creating the best conditions for the plants.

‘We have been using BioCrop Opti^{XL} for all crops for the past three years. And BioMangan 170 NS^P is applied where there is a risk of manganese deficiency,’ explains Kristian.

They find that BioNutria’s products are miscible with almost everything. And that they keep the sprayer clean.

‘We never use a cleaning agent in the sprayer, only the sprayers’ cleaning program with clean water. Luckily, we never see precipitation residues in the sprayer, knock on wood,’ says Kristian, who finds peace of mind knowing that the sprayer is always clean.

‘In general, we have good yields. We cannot attribute it exclusively to the use of BioCrop Opti^{XL}, but we never see strange diseases or manifestations of serious fungal diseases.’

We believe that it helps and that we meet the plants need for micronutrients. We use BioCrop Opti^{XL} as insurance,’ he says. *‘We have a rule of thumb here at Mariesminde. Water and BioCrop Opti^{XL} always need to be in the sprayer, as well as plant protection products.’*

We make it simple and easy. We would rather use a litre of BioCrop Opti^{XL} than a surfactant,’ he concludes.

Kristian Boel Oestergaard, Mariesminde Landbrug A/S, Skive, Denmark
The farm spans 1,900 hectares and has a production of barley, rye and wheat, as well as a crop rotation of spinach, broad beans, oilseed rape and grass (ryegrass of the lawn type), and a livestock production of 2,400 sows, 80% full-line, with fattening pigs for sale to Tican.





Manganese and boron for **corn** on sandy soil

Effective prevention of boron and manganese deficiency in corn

Micronutrients for corn have now been tested in Danish national field trials for four seasons. In all four seasons, the application of BioNutria Boron 150 and BioMangan 170 NS^P clearly gave a higher yield – up to an impressive 1,780 forage units/ha.

BioNutria Boron 150 and BioMangan 170 NS^P can be mixed together as well as with the herbicides usually used in corn.

When you choose BioNutria's products, you can thus add both boron and manganese without extra spraying costs.

Healthy sugar beets – an insurance against deficiencies

Our products are used as a guarantee against deficiencies in micronutrients. Our general recommendation is to use a total of 8–10 litres of BioCrop Opti^{XL}, 2–3 litres of BioMangan 170 NS^P and 3–5 litres of BioNutria Boron 150 throughout the growing season.

Some areas suffer from copper deficiencies. Here we recommend mixing 0.5–1 L/ha BioCopper 70.

Our products are easy to use. They are easily mixed with plant protection products, so the addition of micronutrients requires no extra applications.

This saves time and ensures that both plant protection and micronutrients are added on time.

Call us for professional guidance and advice on nutrients for your beets.

Leek, onion, spinach, cabbage, beetroot, etc. **Micronutrients** for conventional and organic farming

BioNutria has the solutions

More and more vegetable growers are now using BioNutria's micronutrients. Simply to ensure that the crop does not suffer from micronutrient deficiencies.

If just one nutrient is missing, it affects both yield and quality negatively! It is as simple as that.

Whatever micronutrient your crops need, we can deliver it. In the most easily absorbable form and at very competitive prices. And, of course, with unrivalled miscibility with pesticides.

Extra zinc and copper

BioCrop Opti^{ML} for maize and onions is extra rich in zinc. Like our other products, the fertiliser contains our additives, which ensure an unparalleled uptake in the plant.

When additional manganese is needed, the BioCrop products can be supplemented with BioMangan 180 NS or BioMangan 170 NS^P.

In addition to manganese, you can add our individual micronutrients, such as: BioNutria Boron 150, BioCopper 70, BioPotassium 100, BioMolybdenum 120, BioMagnesium 50 and BioZinc 115.

Similar micronutrients are available for organic farming.





Superior **starter fertiliser** with proven extra yield

Big benefits with starter fertiliser!

Phosphorus fertiliser for fungicide treatment or application on laying has shown to produce good extra yields in recent years.

BioNutria's starter fertiliser for potatoes Bio P11, is a pure phosphorus fertiliser for use when laying potatoes.

We have had two products tested in the Danish national trials.

- **Bio NP 5-8.** Absolutely a top scorer among liquid starter fertilisers for potatoes in the Danish National Field Trials (Landsforsøg) 040221717. Extra net economic yield of EUR XX/ha. The fertiliser has a low pH and requires equipment that tolerates low pH.
- **Bio P11.** A pure phosphorus fertiliser with an extra net economic yield of EUR 231/ha in the Danish National Field Trials (Landsforsøg)

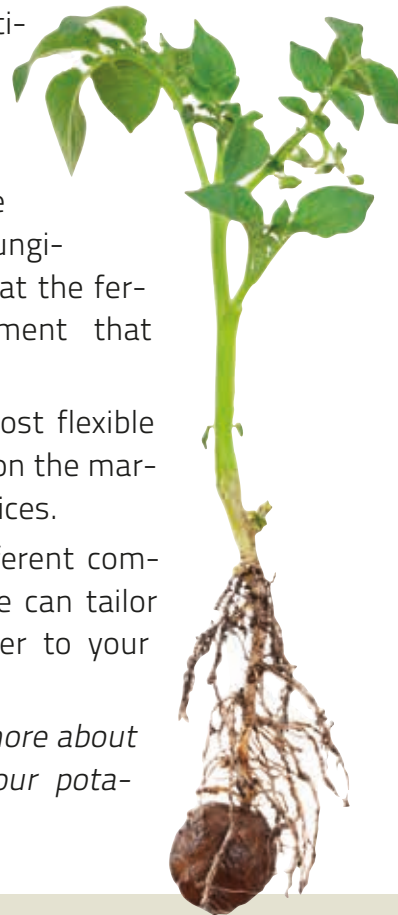
04021616. The fertiliser has a low pH and requires equipment

The fertilisers can be used together with fungicides. Just be aware that the fertiliser requires equipment that tolerates a low pH.

BioNutria offers the most flexible and efficient solutions on the market at very attractive prices.

If you would like a different composition than these, we can tailor make a starter fertiliser to your needs.

Call us today to learn more about starter fertiliser for your potatoes.



Effective **late fertilisation**

- **Bio NS 15-2.** Bio NS 15-2 and Bio NS 15-2^{Carbon} are foliar fertilisers that are pH-optimised to avoid N evaporation. They are gentle on potatoes and mix well with any fungicide. The best products on the market for late fertilisation of potatoes and they can be used in all other crops as well.

The formulations ensure rapid and effective uptake in the plant and utilization of both nitrogen and sulphur. Adjuvants added.

Recommended dosage 50 kg/ha = 44 l/ha per treatment. Max. dosage is 133 kg/ha = 115 l/ha per treatment. Treatment can be repeated as needed.

Delivered in 500 and 1,000 litre containers.

Top quality for your **Christmas trees**

BioNutria's micronutrients are used as standard treatment by many Christmas tree growers to ensure colour, lush needles, and to minimise the occurrence of needle tip chlorosis on the trees. By choosing BioNutria's fertilisers and following our recommendations, you can look forward to a simple, very economic and super effective fertiliser programme.

Fertilisation recommendations with micronutrients

1st spraying after budding	Mist sprayer 400-600 l water/ha	5 l BioCrop Opti ^{XL} + 1 l BioMangan 180 NS + 12 l BioMagnesium 50
3-4 weeks after 1st spraying	Mist sprayer 400-600 l water/ha	5 l BioCrop Opti ^{XL} + 1 l BioMangan 180 NS + 12 l BioMagnesium 50
3-4 weeks after 2nd spraying	Mist sprayer 400-600 l water/ha	5 l BioCrop Opti ^{XL} + 1 l BioMangan 180 NS + 36 l BioMagnesium 50
Colour fertilisation as needed (repeat if needed)	Mist sprayer 400-600 l water/ha	50 kg (40 l) BioNS 15-2 Leaf fertiliser + g.g. 36 l BioMagnesium 50

Always use 400-600 L water/ha. It is important that all needles are covered in the solution. The amounts are guidelines only and can be adjusted to the culture's needs with respect to amount and number of applications.

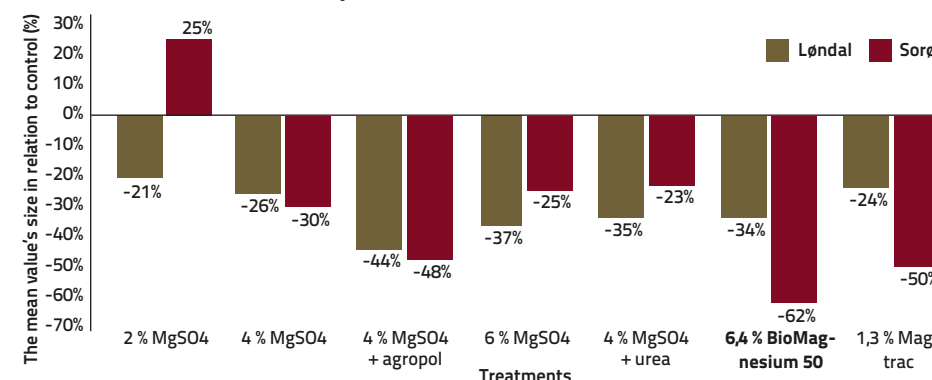
The first application will generally be in the last half of June and the last application should not be later than the end of September. After that time, the needles may no longer be treatable.

BioNutria's products are fully mixable with sulphur and anti-lice agents and can therefore be added when spraying pesticide.

Needle tip chlorosis

Needle tip chlorosis is unfortunately a well-known problem in many Christmas tree cultures. With BioNutria's BioMagnesium 50 you ensure the addition of easily absorbed magnesium multiple times during the season. The Danish Christmas Tree Association has in several experiments tested the effect of various magnesium solutions on needle tip chlorosis. BioNutria's BioMagnesium 50 and BioCopper 70 are top notch.

Occurrence of needle tip chlorosis in relation to control treatment



Better colour and lush needles

We got a more controlled growth and larger and fuller needles. We did not experience needle loss or brown needles.

Per Skarby, Fæstibakke, Denmark
part of Global Nature Trees

Product overview organic farming

BioNutria has put together a fertiliser series of permitted non-organic macronutrients, micronutrients and trace elements that can be used in organic agricultural production in accordance with EU Regulation 848/2018.

All fertilisers are naturally made from the best and most easily absorbed raw materials approved for organic use. The products are registered as EU fertilising products.

BioNutria Mangan 170 S

	S	Mn	Density	pH
g./l.	106.25	178.04		
Weight percent	7.43	12.45	1.43	4.53

BioNutria Opti^{XL}

	S	Mn	MgO	Cu	Zn	B	Fe	Mo	Density	pH
g./l.	74.50	26.00	39.00	1.30	1.30	2.60	13.00	0.10	1.30	3.07
Weight percent	5.75	2.00	3.00	0.10	0.10	0.20	1.00	0.01	1.30	3.07

Aminosol 9

	N	K	Vf	pH
g./l.	115	11		
Vikt procent	9.4	0.9		

Aminosol PS 6

	N	Vf	pH
g./l.	65.00		
Vikt procent	6.00		

BioNutria Boron 150

	B	Density	pH
g./l.	150.00		
Weight percent	11.03	1.36	8.10

BioNutria Zinc 115

	Zn	S	Density	pH
g./l.	98.40	30.70		
Weight percent	8.00	2.50	1.23	4.96

BioNutria Iron 75

	Fe	Density	pH
g./l.	75.00		
Weight percent	6.50	1.20	1.63

BioNutria Molybdenum 120

	Mo	Density	pH
g./l.	119.00		
Weight percent	9.50	1.23	8.59

BioNutria Copper 70

	S	Cu	Density	pH
g./l.	35.00	70.00		
Weight percent	3.02	6.00	1.18	3.81

BioNutria Magnesium 50

	S	MgO	Density	pH
g./l.	66.00	51.20		
Weight percent	5.49	4.20	1.22	6.92

BioNutria Cobalt 30

	Co	Density	pH
g./l.	30.00		
Weight percent	2.78	1.081	6.01

Produktbeskrivelser

BioNutria Mangan 170 S

Effectively prevents and controls manganese deficiencies in all crops. A premixed, high-quality manganese solution. Also contains sulphur.

BioNutria Opti^{XL}

Contains eight macronutrients, micronutrients and trace elements and is, of course, made from the very best raw materials allowed for organic use.

Aminosol 9

Organic nitrogen fertiliser containing 20 different amino acids and peptides. May be used for organic agricultural production in accordance with Council Regulation (EC) No 834/2007 and Regulation (EC) No 889/2008.

Aminosol PS 6

Organic nitrogen that may be used for organic agricultural production in accordance with Council Regulation (EU) No 834/2007 and Regulation (EC) No 889/2008.

BioNutria Boron 150

Liquid boron fertiliser for crops that are sensitive to boron deficiency such as rape and beets. Optionally, supplement with BioNutria Opti^{XL} to cover micronutrient needs. Unique miscibility.

BioNutria Zinc 115

Highly concentrated. Effectively prevents and controls zinc deficiency in all crops. Special formula that is rich in directly plant-accessible zinc. Also -contains sulphur.

BioNutria Iron 75

Highly concentrated iron fertiliser. Effectively prevents and controls iron deficiency in all crops.

BioNutria Molybdenum 120

Highly concentrated. Effectively prevents and controls molybdenum deficiency in all crops.

BioNutria Copper 70

Effectively prevents and controls copper deficiency in all crops. Special formula that is rich in easily absorbed copper and sulphur.

BioNutria Magnesium 50

Magnesium solution formulated for easily absorbed magnesium. Also contains sulphur.

BioNutria Cobalt 30

Highly concentrated. prevents and controls cobalt deficiency. Used for all crops that have symbiosis with tuber bacteria, as well as for fodder crops suitable for ruminants.

Micronutrients produced greater yield

Peter Ramsgaard, who runs 70 ha near Slangerup on Zealand, is a happy and satisfied part-time farmer.



In addition to his own farm of 70 hectares, he works with agriculture at Hoejagergaard, which is a protected work and activity programme for people who are unable to participate in the traditional labour market.

Peter is very passionate in his cultivation of broad beans and multi-stemmed lupines. The broad beans have been healthy for a very long period and, like the multi-stemmed lupines, have produced good yields.

On the areas with broad beans and multi-stemmed lupines, he has placed several beehives to improve pollination.

He explains that this year he applied BioNutria Mangan 170S, BioNutria Kobber 70, BioNutria Opti^{XL} and Aminosol 9.

‘I could see a big difference between whether it was treated or not, but there was not much difference to the eye between the number of treatments. In my experience, treatments must be started before flowering begins’, he says.

Peter has sprayed BioNutria manganese 170S, BioNutria Boron 150 and BioNutria Opti^{XL}, as well as a biostimulant.

‘I made an untreated track in the rye, and therefore I am sure that the treatment has generated an additional yield of 1,000 kg/ha’, he says.

Peter’s rape has also yielded satisfactory yields.

‘I have given the rapeseed BioMangan 170 NS^P, BioCrop Opti^P, BioNutria Boron 150 and Bio Molybdenum 120. I also experienced that the rapeseed had a long flowering period. It got a single anti-fungal application, but no insect treatments throughout the season’, explains Peter, who has been very pleased with his rapeseed this year.

Peter is windrowing broad beans and lupines. Both to achieve a good harvest quality and to reduce the need for drying. All crops leave the property directly from the combine

Peter Ramsgaard, Rumle Agro, Slangerup in North Zealand Denmark
Peter Ramsgaard manages 70 ha of mixed crops. Eight ha are owned and 62 ha are leased.

Good products

‘It is difficult to find approved and manageable micronutrients for organic use. BioNutria products are stable and easy to handle.’

Ulrik Høegh, Stinelund, Sakskoebing, Denmark



The image shows part of the field that did not get 10 kg N in the form of Bio NS 15-2Carbon, growth regulation and first treatment.

Increased use of micronutrients has strengthened plant production

A good start with the pigs, a fantastic harvest in 2022 and, not least, irreplaceable help from his father have given Martin Justesen a strong foundation for the future operation of the Blandshavegaard estate, which is located near Kettinge on Lolland, Denmark.

Martin took over the property, which has been in the family for five generations, back in 2019. Since the acquisition, Martin has managed the property with mixed crop production and pig production. *“When I took over, the farm consisted of 90 hectares of mixed crop production and an annual production of 5,500 pigs from 30 kg until slaughter weight”,* says Martin.

In 2020 Martin was presented the opportunity to make a long-term lease of an additional 240 hectares with an investment fund. Later that year Martin rented a pig house with the possibility of an extra production of 6,500 pigs per year.

“Our total plant production, including leases, is currently 330 ha. In addition, we have an annual production of 12,000 fattening pigs”, he says.

The leases made it possible for Martin to establish himself as a young farmer and create the basis for running an exciting business.

In recent years, Blandshavegaard has had an increased focus on the use of micronutrients.

“We do plant sap analyses several times during the growing season. We actively use the results of the analyses to target the use of specific micronutrients”, explains Martin.

He has been using micronutrients for several years with good effects. BioNutria’s products have been gradually included in his plant production.

“All BioNutria products can be mixed in nearly all common sprays. It is vital”, he says.

He started with a little Bio pH Control in 2021 and has now learned to use it optimally.

“You can tell when you have learned to use pH Control correctly. It is most evident in the glyphosate and beet spraying”, says Martin.

“Now I also add the pH Control to the clean water tank when the sprayer is not used for a while. This avoids limescale deposits, and the sprayer stays clean”.

It is Martin’s experience that it is preferable to use a little too much pH Control than too little, as it reduces the risk of damaging the plants due to chemical residues in the sprayer.

In 2024, Bio pH Control, BioNutria Boron 150, Bio-Molybdenum 120, BioCopper 70, BioNutria Iron 75, Bio-Magnesium 50, Bio NS 15-2^{Carbon}, BioMangan 170 NS^P and BioCrop Opti^P were used in autumn and spring. Then a plan is made based on the plant sap analyses.

“We have applied the different products in consultation with Jeff Madsen from BioNutria, with whom I have a very good cooperation. It gives me peace of mind to know that I can always get guidance and qualified advice from him”, says Martin.

The testing field has produced good yields

In 2024 Martin has had a field test with wheat, where 10 kg N was sprayed in the first treatment and 15 kg N in the third treatment, in the form of Bio NS 15-2^{Carbon}. The field has a poorer soil quality than the other wheat fields.

Martin says that the yield of the 35 hectares is 11.5 tons/ha. In the other wheat fields, yields are between 9 and 10 tons/ha.

One of the reasons is that the specific weight kg/hl was 6–8% higher on the field where foliar fertilisation was applied.

In the rapeseed, he has used BioNutria Boron 150, Bio Magnesium and BioCrop Opti^P, and he has weighed a nice 5.5 tonnes/ha, which he is very pleased with.

Application of micronutrients in 2025

In the upcoming season, Martin will start the crops on solid manure, slurry and then possibly apply 10 kg of N in the form of Bio NPS 15-2-2 together with Broadway, to add some fast-absorbing phosphorus to start the growth.

Then he plans to apply the first treatment and then possibly opt to split the third treatment, depending on the growing season.

In the second treatment, he will not apply fertiliser, as the flag leaf at that stage is very sensitive.

“It is very suiting to be able to apply the fertiliser together with the fungicide, and I like to do that at night and in the evenings. When I apply Bio NS 15-2^{Carbon} myself, the amount of liquid can easily be reduced, and I get greater capacity with the sprayer”, says Martin.



Crop plan 2025

50 ha rapeseed, 27 ha beach fescue, 185 ha wheat, 60 ha spring barley + fallow.

No beets are planned for 2025. Partly because of good yields in rapeseed, but also because the beets do not fit into the rest of the crop rotation for 2025. Blands-havegaard also has most of the machinery for cultivating rape, except for seed drills, but there are plans to purchase them in the winter, which will cut contractor costs.

Martin Justesen, Blandshavegaard, Lolland Denmark
The farm, located at Kettinge on Lolland, is run by Martin Justesen with help from his father and extra assistance during the seasons. The operations consist of 330 hectares of mixed crop production. 90 hectares owned, 240 hectares leased. In addition, there is a 70-hectare contractor agreement. In addition to plant breeding, 12,000 fattening pigs are produced annually.

Ordering

We have made it even easier to order our products. As usual, you can order our products through one of our employees in the Agro Team or online 24 hours a day at our webshop bionutria.eu

Packaging sizes

You are free to compose both a half and whole pallet with the various products that precisely suit your needs.

You decide the composition of the pallet yourself according to your wishes and with precisely the products you need.

Whole pallet: 87 x 10 L jugs

Half pallet: 44 x 10 L jugs

We also deliver our products in **500 and 1000 L containers** to make it even cheaper.

Delivery

We deliver directly to your door. The order leaves our warehouse within 1-3 days of the accepted order confirmation.





BioNutria
DENMARK

Ordering, sales and advice

Good advice does not cost extra. We are always there to advise you, and if you have questions, do not hesitate to contact us. Call us or email your order. Then we will find the products that suit your needs – at the right price.

PS: Order your goods for 2025 early. It means a lot to us that we can plan production. Naturally, you should not receive the products before you need them.



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Quality doesn't cost, it pays !