
AGRANA
ANIMAL FEED
& FERTILISERS

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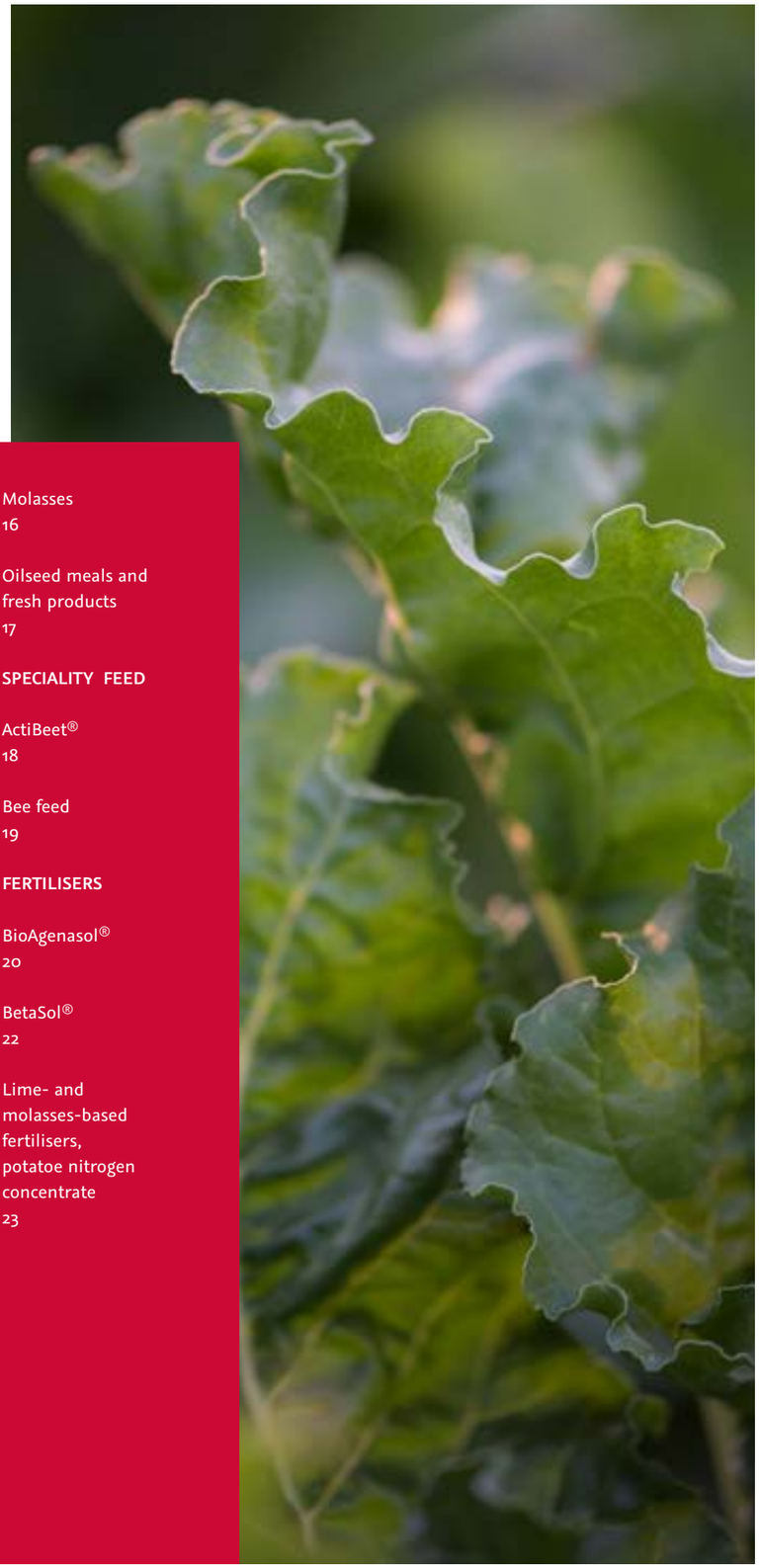


AGRANA STARCH OVERVIEW

AGRANA Starch is specialised in the processing and refining of high-quality agricultural raw materials such as corn, potatoes and wheat into a diverse range of starch products, customised for a wide variety of industries.

STARCH PRODUCTS | Producing premium-quality starch products using modern and environmentally-sensitive methods – that is the main focus in our Starch segment. The complex properties of starch are valued in both the food industry and in technical industrial sectors, such as construction chemistry, paper and board manufacturing, as well as in the textile industry. Another core competence here lies in the production of high-quality feed and fertilisers. Certified organic products and products from GMO-free production have an important place in AGRANA's range of starch products.

ANIMAL FEED & FERTILISERS

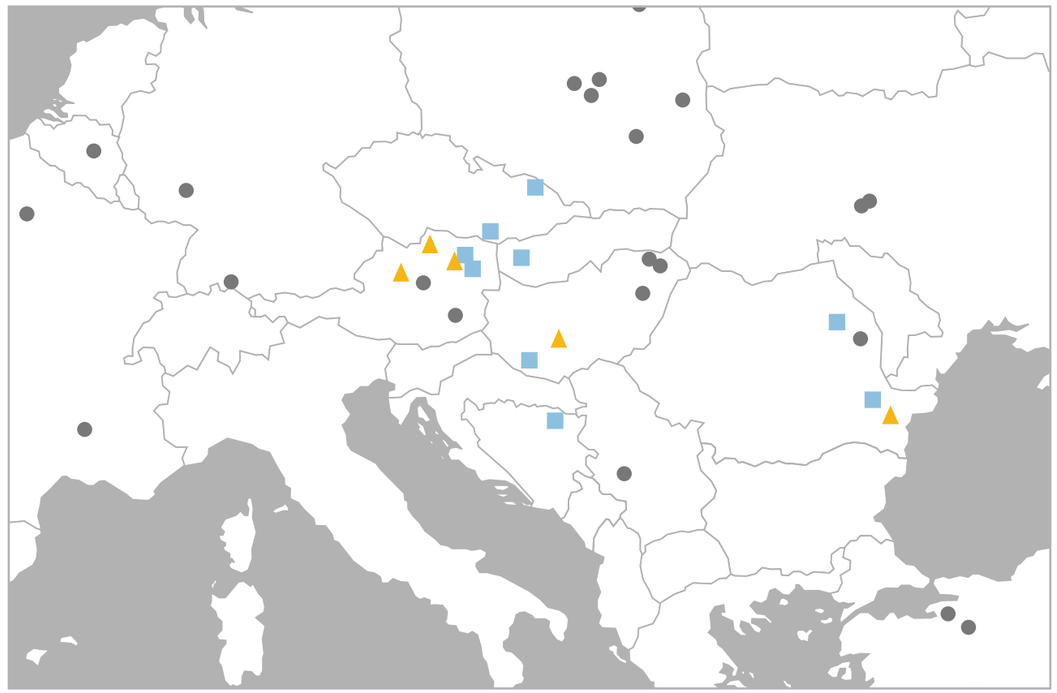
AGRANA produces over half a million tonnes of animal feed every year from the co-products of its sugar and starch production, in what constitutes a sustainable circular economy, and is therefore Austria's largest producer of straight feeds.

AGRANA | supplies the domestic and European animal feed industry and, via traders, also farmers with top quality feed materials from the production of sugar and starch.

AGRANA'S ANIMAL FEED | is suitable for GMO-free feeding and many products are also available in organic quality.

AGRANA's product range is rounded off by purely plant-based, organic fertilisers, available both as liquid and solids.

PRODUCTION SITES IN EUROPE



■ Sugar factories ▲ Starch factories ● Fruit/Juice factories

CIRCULAR ECONOMY & SUSTAINABILITY

Everything that has grown in the field and is processed at AGRANA should be put to good use. That is our ethos. We act in an economical, resource-sensitive and energy-efficient way, respecting both internal and external stakeholders.

PROCUREMENT OF RAW MATERIAL
USE OF WASTE HEAT
SUPPLY PARTNERSHIP
CONTRACT GROWING
INTEGRATED SUSTAINABILITY REPORTING
FURTHER EDUCATION AND TRAINING PROGRAMMES
LOW-EMISSION TECHNOLOGIES
VALUE CHAINS
REGIONALISM
INNOVATIONS
PRODUCTION PROCESSES
SUSTAINABILITY
EMPLOYEE FOCUS
CIRCULAR ECONOMY
ENERGY AND ENVIRONMENTAL
ENVIRONMENTAL AND SOCIAL
ADVISORY NETWORK FOR GROWERS
QUALITY MANAGEMENT
CORPORATE PHILOSOPHY
PRODUCT RESPONSIBILITY
ETHICAL BUSINESS CONDUCT
AGRANA4YOU
CODE OF CONDUCT
GRI
ANTI-CORRUPTION
GOOD AGRICULTURAL PRACTICE
AGRICULTURAL SUPPLY CHAIN
CONTRACT FARMING
CROSS-COMPLIANCE
BIODIVERSITY
BETAEXPO
NATURAL RESOURCES
100% RECYCLING

FOCUS SUSTAINABILITY

ENERGY EFFICIENCY is a core value at AGRANA Starch, a fact demonstrated by the award of the klima:aktiv prize in November 2019

SUSTAINABLE PRODUCTS GMO-free products and large range of organic products

ECOVADIS GOLDSTATUS confirmation of sustainable business

AUSTRIAN QUALITY & CERTIFICATIONS

Our animal feed is produced at the facilities in Pischelsdorf, Tulln, Leopoldsdorf, Aschach and Gmünd – quality "made in Austria". AGRANA produces a wide range of different feed materials that are certified GMO-free in accordance with the relevant Austrian code and are thus approved for the production of GMO-free food.

RESEARCH & DEVELOPMENT – ARIC

The AGRANA Research & Innovation Centre (ARIC) is the main research subsidiary within the AGRANA Group. Innovative projects from market-relevant research fields are constantly being developed and implemented by means of close cooperation between the individual departments in the areas of sugar, starch and fruit technology, as well as agriculture. The chemical, physical and microbiological analyses required here can largely be carried out in-house, helping optimise management of the respective project. Existing skills are further developed and synergies harnessed through national and international partnerships within the framework of funded projects.

Both conventional and organic processing methods and products are systematically improved and refined in close cooperation with AGRANA's production facilities. The process of producing fertilisers and feedstuffs is scientifically monitored on an ongoing basis from the outset and optimisations made to reflect customer needs.

For example, the effect of the organic fertiliser BIOAGENASOL© on the yield of selected fruit and vegetable varieties, as well as the soil structure, is evaluated in fertilisation trials. With regards to animal feed, being easily digestible and ensuring that the nutrients contained in the feed can be properly harnessed are particularly important quality characteristics. Intensive research work and process optimisations have led, among other things, to an increase in the digestible protein content and the availability of essential amino acids in ACTIPROT©.

ActiProt®

Our top quality, protein rich DDGS feed is GMO-free and made at the AGRANA refinery in Pischelsdorf using wheat and corn.

ADVANTAGES

- *The Austrian protein option*
- *Contains at least 28 % raw protein*
- *High content of undegraded dietary protein (UDP)*
- *High proportion of digestible amino acids*
- *Rumen activity supported by yeast and structured fibre*
- *Year-round availability*
- *Rigourus mycotoxin monitoring*
- *Certified GMO-free*

USE IN FEEDING

The high proportion of undegraded dietary protein (45 % UDP), together with its excellent palatability and a higher raw fat content than other sources of protein, make ACTIPROT® the ideal source of protein for dairy and beef cattle. It is well known from practical experience that the basic feed intake can be increased by using ACTIPROT®.

When it comes to pig feed, ACTIPROT® can replace soybean meal to a significant extent, making it the perfect partner for GMO-free feeding. ACTIPROT® can also be used in poultry feed, reducing ammonia emissions by up to 65 %.

AGRANA remains focused on researching and further developing ACTIPROT®. The improved formula is particularly worth mentioning here as it has been possible to reduce the raw protein content by increasing the amount of digestible protein. This dovetails nicely with the environmentally-friendly approach of more precise, nitrogen-reduced feeding without reducing the supply of available raw protein and amino acids. Moreover, the fact that ACTIPROT® is produced alongside the extraction of starch and refining of bioethanol, it is a perfect example of a resource-efficient and sustainable feed.

Suitable for producing GMO-free feed, verified by agroVet GmbH

RAW NUTRIENTS	% OS
Dry matter	88
Raw protein (xP)	28
Raw fat (xL)	9,5
Total sugar	3,4
Starch (xS)	3,1
Dietary fibre (xF)	6,6
Crude ash (xA)	4,9

PROTEIN CHARACTERISTICS	% OS
nxP	25
UDP	45
RNB	1

AMINOSÄUREN	g/kg OS
Lysine	7
Methionine + Cystine	9,3
Threonine	10
Tryptophan	3

FIBRE CHARACTERISTICS	% OS
aNDFom	35
ADFom	14

ENERGY	MJ/kg OS
NEL	7
ME cattle	12
ME pig	13,5

MINERALS	% OS
Calcium	0,1
Phosphorus	0,8
Magnesium	0,3
Potassium	1,2
Sodium	0,3

FORMS OF PACKAGING

Bulk, big bag

ActiGrano®

ActiGrano® is a high-quality wheat-based gluten feed produced at our recently expanded wheat starch and bioethanol factory in Pischelsdorf.

ADVANTAGES

- *Protein-rich feed from Austrian production*
- *Balanced feed with 20% raw protein content*
- *Rich in dietary fibre, satiating and digestive*
- *Balanced content of undegraded dietary protein (UDP)*
- *Good storage properties (pelletized)e*
- *Year-round availability*
- *Rigourus mycotoxin monitoring*
- *Certified GMO-free*

USE IN FEEDING

ACTIGRANO® is a well-balanced feed material and an ideal ingredient in rations for dairy cows and beef cattle. Its fibre content and the optimised content of residual starch are leading to a hight content of usable raw protein. Using ACTIGRANO® thus stimulates rumen activity and at the same time it can help to prevent acidosis. Moreover, ACTIGRANO® is supposed to have positive economic effects in the feed ration.

ACTIGRANO® is also an excellent ingredient for pig rations and small home animal foods in view of its high protein digestibility and satiating properties.

The well balanced properties of ACTIGRANO® are further rounded off by its moderate mineral content.

Finally, ACTIGRANO®, together with other animal feeds, is an example of AGRANA's cascading usage of raw materials.

Suitable for producing GMO-free feed, verified by agroVet GmbH

RAW NUTRIENTS	% OS
Dry matter	88
Raw protein (xP)	20
Raw fat (xL)	6
Total sugar	6,5
Starch (xS)	13
Dietary fibre (xF)	7,7
Crude ash (xA)	6,5

PROTEIN CHARACTERISTICS	% OS
nxP	17,7
UDP	30
RNB	0,55

AMINO ACIDS	g/kg OS
Lysin	5,5
Methionin + Cystin	6,5
Threonin	7
Tryptophan	3

FIBRE CHARACTERISTICS	% OS
aNDFom	30
ADFom	8

ENERGY	MJ/kg OS
NEL	6,6
ME cattle	10,9
ME pig	10,8

MINERALS	% OS
Calcium	0,1
Phosphorus	1,2
Magnesium	0,6
Potassium	1,5
Sodium	0,3

FORMS OF PACKAGING

Bulk, big bag

CORN GLUTEN FEED

The corn gluten feed produced at the AGRANA starch mill in Aschach is a carefully dried feed material with a balanced protein and energy content.

ADVANTAGES

- *Balanced protein and energy content*
- *Rich in fibre and highly digestible*
- *High degree of acceptance*
- *Good storage properties*
- *Year-round availability*
- *Rigourus mycotoxin monitoring*
- *Certified GMO-free*

USE IN FEEDING

The high digestibility and high fibre content of CORN GLUTEN FEED makes it an important ingredient in many ruminant rations. The protein content also enables it to be used for a range of other livestock feed.

RAW NUTRIENTS	% OS
Dry matter Raw	87
Protein (xP) Raw	19
Fat (xL)	2,5
Total sugar	10
Starch (xS)	15
Dietary fibre (xF)	7,5
Crude ash (xA)	6

PROTEIN CHARACTERISTICS	% OS
nxP	17,5
UDP	30
RNB	0,5

AMINO ACIDS	g/kg OS
Lysine	4
Methionine + Cystine	7
Threonine	7
Tryptophan	0,9

FIBRE CHARACTERISTICS	% OS
aNDFom	32
ADFom	9,5

ENERGY	MJ/kg OS
NEL	7
ME cattle	11
ME pig	11

MINERALS	% OS
Calcium	0,05
Phosphorus	1
Magnesium	0,6
Potassium	1,4
Sodium	0,25

FORMS OF PACKAGING

Bulk

Suitable for producing GMO-free feed, verified by agroVet GmbH

CORN GLUTEN MEAL

Our corn gluten meal produced at the AGRANA starch mill in Aschach is a high-quality protein meal.

USE IN FEEDING

The high proportion of valuable constituents makes CORN GLUTEN MEAL ideal for use in the diet of all high-performance animal species. The natural colourings contained also mean that CORN GLUTEN MEAL is a highly valued component in the raising of broilers and the diet of laying hens.

CORN GLUTEN MEAL is also a valuable component in pet food.

RAW NUTRIENTS	% OS
Dry matter	87
Raw protein (xP)	60
Raw fat (xL)	6,5
N-free extracts (NfE)	20
Dietary fibre (xF)	1
Crude ash (xA)	1,5

AMINO ACIDS	g/kg OS
Lysine	9
Methionine + Cystine	25
Threonine	20
Tryptophan	2,6

ENERGY	MJ/kg OS
NEL	9
ME cattle	14
ME pig	18
ME poultry	16,4

FORMS OF PACKAGING

Bulk, big bag

Suitable for producing GMO-free feed, verified by agroVet GmbH

ALSO AVAILABLE IN ORGANIC QUALITY.

ADVANTAGES

- *Excellent source of plant-based protein*
- *Protein content of over 60 %*
- *Highly digestible protein*
- *Rich in natural colourings (carotenoids)*
- *Rigourus mycotoxin monitoring*
- *Certified GMO-free*

POTATO PROTEIN

Potato protein is produced while extracting potato starch at AGRANA's starch mill in Gmünd. It is one of the highest-quality types of protein meal.

ADVANTAGES

- *Top quality source of protein*
- *Excellent amino acid profile*
- *Particularly high content of the first-limiting amino acids lysine, methionine and cystine*
- *High digestibility*
- *Grain free, plant-based source of protein*
- *Certified GMO-free*

USE IN FEEDING

POTATO PROTEIN is comparable with other sources of protein of highest biological value such as fish meal and milk powder. It is suitable for all forms of livestock and can be used to partially or completely substitute animal meal. The high digestibility of POTATO PROTEIN (95 %) makes it also particularly suitable for use in piglet and calf rearing.

Additionally, POTATO PROTEIN is a grain-free, plant-based source of protein with excellent properties for use in both pet food and aquaculture. POTATO PROTEIN is a suitable ingredient for allergen-free feeds, which are increasingly in demand, especially for dogs and cats.

RAW NUTRIENTS	% OS
Dry matter	> 86
Raw protein (xP)	> 65
Raw fat (xL)	1,5
Crude ash, insoluble in HCL	< 0,5

AMINO ACIDS	g/kg OS
Lysine	50
Methionine + Cystine	27
Threonine	41
Tryptophan	9

ENERGY	MJ/kg OS
NEL	7
ME cattle	7,4
ME pig	16

FORMS OF PACKAGING

Bulk, big bag, 25 kg bags

Suitable for producing GMO-free feed, verified by agroVet GmbH

ALSO AVAILABLE IN ORGANIC QUALITY.

WHEAT GLUTEN

Wheat gluten is the protein-rich product derived from wheat-starch extraction. The protein meal consists mainly of endosperm proteins and is characterised by its high digestibility.

USE IN FEEDING

WHEAT GLUTEN is often used as a high-quality mixing component in animal feed, such as in calf milk replacers, in aquaculture (fish feed) and in the pet food industry (dog and cat food).

WHEAT GLUTEN, when used as an animal feed ingredient, is first and foremost a plant-based source of protein. Another feature of WHEAT GLUTEN is the fact that it provides texture and is a source of viscoelasticity.

RAW NUTRIENTS	% OS
Dry matter	> 92
Raw protein (xP)	> 75
Raw fat (xL)	5
N-free extracts (NfE)	3
Crude ash (xA)	1

AMINO ACIDS	g/kg OS
Lysine	13
Methionine + Cystine	27,5
Threonine	20
Tryptophan	7,5

ENERGY	MJ/kg OS
NEL	7
ME cattle	11
ME pig	11

Values relate to vital wheat gluten 82

ADVANTAGES

- *High protein value*
- *Favourable amino acid spectrum*
- *High digestibility*
- *Strict mycotoxin monitoring*
- *Certified GMO-free*

FORMS OF PACKAGING

Bulk, big bag, 25 kg bags

Suitable for producing GMO-free feed, verified by agroVet GmbH

ALSO AVAILABLE IN ORGANIC QUALITY.

WHEAT BRAN

Wheat bran is derived from the hulling process when producing starch from cleaned wheat and consists mainly of parts of the outer hull and some small shares of the endosperm.

ADVANTAGES

- *High satiating properties*
- *Cost effective ingredient*
- *Antiacidotic effect*
- *Rigourus mycotoxin monitoring*
- *Certified GMO-free*

USE IN FEEDING

WHEAT BRAN is rich in dietary fibre, containing a natural balance of protein, minerals and energy sources. Its dietary properties mean that WHEAT BRAN is an indispensable component in any economic feeding strategy.

RAW NUTRIENTS	% OS
Dry matter	87
Raw protein (xP)	15
Raw fat (xL)	5,5
N-free extracts (NfE)	50
Dietary fibre (xF)	11
Crude ash (xA)	6

ENERGY	MJ/kg OS
NEL	5,4
ME	9,2

MINERALS	% OS
Calcium	0,8
Sodium	0,01

FORMS OF PACKAGING

Bulk

Suitable for producing GMO-free feed, verified by agroVet GmbH

ALSO AVAILABLE IN ORGANIC QUALITY.

SUGAR BEET PULP PELLETS

We offer these pellets in formulations with and without added molasses.

USE IN FEEDING

Sugar beet pulp pellets are mainly used to balance cattle feed and are a good way of providing additional energy to e.g. protein-rich grass silage, especially on grassland farms.

When feeding pigs, the focus is on feed being satiating and having a positive effect on gut microbiota.

Sugar beet pulp pellets are also a popular, appetising and varied addition to the feed ration of horses. Before feeding, the pellets should be soaked in a sufficient amount of water.

Other areas of application include the pet food industry (dog and cat food) and aquafarming (fish feed).

RAW NUTRIENTS	% OS
Dry matter	86
Raw protein (xP)	9
Raw fat (xL)	1
Sugar (xZ)	8
N-free extracts (NfE)	57
Dietary fibre (xF)	15
Crude ash (xA)	8,1

ENERGIE	MJ/kg OS
NEL	6,5
ME cattle	10

MINERALSTOFFE	% OS
Calcium	0,8
Phosphorus	0,1
Magnesium	0,2
Potassium	1,5
Sodium	0,5

Values relate to molassed sugar beet pulp pellets

FORMS OF PACKAGING

Bulk, big bag, 30 kg bags

Suitable for producing GMO-free feed, verified by agroVet GmbH

ALSO AVAILABLE IN ORGANIC QUALITY.

ADVANTAGES

- *Easily digestible share of raw fibre (15 to 18 %)*
- *Slow breakdown of cellulose, hemicellulose and pectin*
- *Good swelling properties*
- *Positive effect on gut microbiota*
- *Certified GMO-free*

MOLASSES

Molasses is a thick dark brown syrup of the sugar production containing organic acids and minerals in addition to having a sugar content of at least 42 %.

ADVANTAGES

- *Fast-acting source of energy and high energy content*
- *Palatable feed*
- *Improves dust binding in feed*
- *Improves feed intake and milk production*
- *Excellent silage additive*
- *Certified GMO-free*

USE IN FEEDING

This tasty feed is ideal when energy is needed quickly and can therefore be used as a supplement to cattle, horse, pig and poultry feed.

The high energy content of MOLASSES means it is also well-suited for use as a silage additive and has proven particularly effective when added to silage material with a low fermentation substrate content.

RAW NUTRIENTS	% OS
Dry matter	75
Raw protein (xP)	9,5
Raw fat (xL)	1
Sugar	> 42
N-free extracts (NfE)	60
Crude ash (xA)	9

ENERGY	MJ/kg OS
NEL	6
ME cattle	9

MINERALS	% OS
Calcium	0,05
Phosphorus	0,02
Magnesium	0,02
Potassium	4,0
Sodium	1,5

FORMS OF PACKAGING

Bulk, in tankers

Suitable for producing GMO-free feed, verified by agroVet GmbH

ALSO AVAILABLE IN ORGANIC QUALITY.

OILSEED MEALS AND FRESH PRODUCTS

AGRANA also offers oilseed meals and a range of fresh products, rounding off its portfolio of feed products.

OILSEED MEAL

Following protein feed is offered in addition to the feedstuff from our own production:

- Soybean meal (non-GMO and GMO)
- Rapeseed meal
- Sunflower meal

Thus, together with the feed from our own production, AGRANA provides a wide range of high-quality plant-based proteins. The focus here is on regionalism and non-GMO products, as well as on handling orders quickly and providing individualised support. Feed can be supplied in small and large batches, in each case using customised logistic solutions.

Contact:
E: feed@agrana.com

FRESH PRODUCTS

AGRANA also offers a range of fresh products that are available directly from the plant in Gmünd:

- Potato pulp
- Potato peel mash

Highly digestible potato pulp is an excellent source of energy and easy to ensile, making it suitable, for example, for use as an ingredient in highly structured TMR (total mixed ration) feeding.

Potato peel mash is also a high-quality source of energy and can be used both as feed and as a substrate in biogas facilities. The consistency of potato peel meal means that can be pumped without any problems and can be delivered using liquid feeding systems.

It is important to remember that the availability of fresh products depends on the respective production process.

Contact:
E: rohstoffgs@agrana.com

ALSO AVAILABLE IN ORGANIC QUALITY.

ActiBeet®

ActiBeet® is a crystalline, natural betaine and is obtained through the crystallisation of betaine molasses, a raw material from the process of desugaring molasses, from sugar beet molasses in Tulln.

ACTIBEET® – NATURAL SOURCE OF BETAINE

Natural BETAINE is a proven, multifunctional nutrient, which helps to maintain the health, well-being and performance of animals.

BETAINE is involved in several important physiological functions at gastrointestinal and metabolic levels. It acts as a non-ionic osmoprotectant, maintaining the mineral and water balance and protecting cells in critical situations without interfering with normal cellular functions. Betaine's chemical composition $(CH_3)_3N^+CH_2COO^-$, containing three methyl groups, means it is considered one of the most efficient methyl-group donors.

BETAINE is known for being successfully used in poultry and pig feed as well as in cattle feed: ActiBeet® has a positive effect on the performance and fertility of animals.

USE IN FEEDING

Betaine can be used in all animal species without any legal limits.

ACTIBEET® is recommended as a natural source of betaine, particularly in the case of pig and poultry feed, in aquafarming and ruminant feeding (calves and lambs) at a dosage of 0.2 – 2.1 kg/t of prepared feed. ACTIBEET® is a GMO-free, natural source of betaine from sugar beet.

AGRANA OFFERS TWO VARIETIES FOR THE ANIMAL FEED SECTOR:

- ACTIBEET® 97* with a betaine content of 97 % without additives such as anti-caking agents, suitable for use in drinking water as well as organic production.
- ACTIBEET® 96 for the production of feed and premixtures with a betaine content of at least 96 % mixed with an anti-caking agent.

FORMS OF PACKAGING

20 kg bags

APPROVED FOR ORGANIC PRODUCTION*

*) only natural betaine, namely betaine anhydrous (3a920), can be used in organic production (see Implementing Regulation (EU) 2019/2164).

BEE FEED

*AGRANA offers a range of bee feed based on sugars and starches for use in both conventional and organic bee-keeping. All of the ingredients we use are GMO-free.**

AGENABEE® is a ready-to-use bee feed syrup from Austria, consisting of a balanced mixture of different types of sugar (glucose, maltose and fructose). Sugar produced alongside the process of corn starch extraction forms the basis of AGENABEE®. The product is the market leader in Austria, very digestible for bees and has been tried and tested by beekeepers for many years.

BIOAGENABEE® is a ready-to-use organic bee feed syrup from Austria, produced on the basis of organic wheat starch and organic beet sugar. The ready-to-use bee feed is approved for organic beekeeping (EASY-CERT listed). BIOAGENABEE® itself contains no starch, has been tried and tested by beekeepers for many years and is very digestible for bees.

BIOVITABEE® is a ready-to-use premium organic bee feed from Austria, based on purely organic beet sugar. The sugar composition of BIOVITABEE® (fructose, glucose and sucrose) closely reflects that of the bee's own honey, making it the premium product in the bee feed syrup sector. The ready-to-use syrup is approved for organic beekeeping (EASY-CERT listed).

FORMS OF PACKAGING

Tanker (AGENABEE®)
1.200 kg IBC (all)
28 kg bag-in-box (all)
16 kg bag-in-box (AGENABEE® & BIOVITABEE®)

SOURCES

Small quantities are available from warehouses, specialist beekeeping supplies, agricultural traders and BioVermarktung Austria.
Bulk deliveries (single-variety, full truck deliveries) can be ordered directly from AGRANA.

For more details on our bee food, please visit
AGRANA.COM/BEES

* According to the EU-Eco-regulation 834/2007

BIOAGENABEE® & BIOVITABEE®
ARE SUITABLE FOR ORGANIC BEEKEEPING.

BioAgenasol®

BioAgenasol® is a 100% plant-based, complete long-term fertiliser and soil activator, supporting plants and soils in several different ways at the same time due to the nutrient values and the rich organic ingredients.

ADVANTAGES

- *Promotes the accumulation of humus and, therefore, soil fertility*
- *Rapid initial and long-lasting effectiveness*
- *Requirements-based supply of nutrients*
- *Prevention of washout (e.g. ground-water protection)*
- *No risk of plant damage due to over fertilisation*
- *Risk-free for humans and animals*
- *Effective at low temperatures*
- *Easy to handle during distribution*

ORGANIC FERTILISER FOR FRUIT, VEGETABLE, VINE AND ARABLE CROPS

BIOAGENASOL® is an Austrian product which is produced at our plant in Pischelsdorf from wheat, corn and triticale, and refined with AGRANA's own organic liquid fertilisers.

BIOAGENASOL® supports plant growth and the soil in several ways: it activates the microorganisms in the soil and releases nutrients rapidly, and it also acts as an effective water reservoir by improving the soil structure, while at the same time being highly resistant to washout.

BIOAGENASOL® is rich in organic substances, promotes the accumulation of humus and soil fertility. This fertiliser is suitable for all fruit, vegetable, vine and arable crops. The plant-based fertiliser has been evaluated in accordance with Bio Austria's guidelines and approved for organic farming (EASY-CERT registered). All raw materials used are GMO-free.*

NUTRIENT VALUES

5,5 % nitrogen (N)
2,5 % phosphorus (P_2O_5)
1,5 % potassium oxide (K_2O)
90 % organic substance in the dry matter

AVAILABLE FORMS

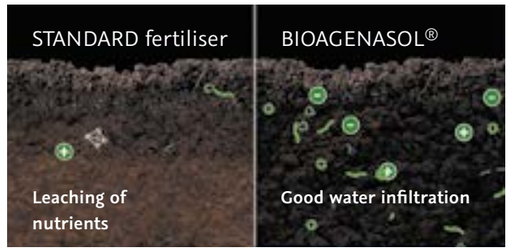
Mealy 0,1 – 2 mm
Granules 2 – 7 mm
Pellets 3 – 4 mm

FORMS OF PACKAGING

Bulk
Big bags
17 kg bags (mealy)
20 kg bags (granules)

APPROVED FOR USE IN ORGANIC FARMING*

HOW BIOAGENASOL® WORKS IN DETAIL



BIOAGENASOL® activates the microorganisms in the soil and thereby encourages the accumulation of the minerals needed, resulting in more vigorous root growth. This creates a crumbly soil structure, which promotes both soil life and soil health.

APPLICATION

- *Applicate using a commercially available spreader*
- *Work into the soil if precipitation is limited*

FRUIT

Young plantations	500–700 kg/ha	late autumn/spring
Established plantations	700–900 kg/ha	late autumn/spring
Berry plantations	700–900 kg/ha	spring

VEGETABLES

Spinach	1.500–1.800 kg/ha	before planting
White/red cabbage	2.000–2.500 kg/ha	before planting
Leguminosen	600–900 kg/ha	before planting
Tomatoes/pepper	900–1.100 kg/ha	before planting
Pumpkin	700–900 kg/ha	before planting

FIELD CROPS

Potatoes	1.000–2.000 kg/ha	before planting
Corn	1.400–1.700 kg/ha	before planting
Sugar beet	900–1.300 kg/ha	before planting

VINES

500–700 kg/ha spring/autumn

For more details on our organic fertiliser, please visit **AGRANA.COM/BIOAGENASOL**

* According to the EU-Eco-regulation 834/2007

BetaSol®
ORGANIC FERTILISER

BetaSol® contains 97 % glycine betaine and is obtained through the crystallisation of betaine molasses in Tulln.

ADVANTAGES

- *Glycine betaine as nitrogen source*
- *Rapid absorption via the leaf*
- *Prevents the plant from drying out by acting as an osmoregulator*
- *Helps the plants when faced with heat, cold, droughts and rain*

IMPROVED SUPPLY OF NITROGEN

BETASOL® is absorbed via the plant leaf and the amino acid glycine-betaine helps supply the plant with nitrogen. This saves the plant having to undertake energy- and time-consuming synthesis and enables it to react very quickly to environmental stresses such as heat, cold, droughts and rain.

OSMOREGULATOR

BETASOL® regulates the osmotic pressure and prevents the plant from splitting open or drying out. BetaSol® has a positive effect on crop yields under difficult conditions.

APPLICATION

For use in agriculture, vegetable- and fruit-growing, as well as horticulture. BetaSol® is rapidly absorbed by the plant through its leaves. We recommend using BetaSol® by spraying application after dissolving it in water. Mixing with a wetting agent or adhesive improves absorption. It is recommended to avoid mixing with pesticides that contain copper.

RECOMMENDED DOSAGE:

- Cherries: 2-4 kg/ha in 400 – 1,000 litres of water
  First application when colour changes from green to yellow. Second application when colour changes from orange to red.
- Apple/pear: 4-6 kg/ha in 400 – 1,000 litres of water
  At balloon stage/start of flowering when there is a risk of frost.
- Tomatoes: 2-3 kg/ha in 400 – 1,000 litres of water
  At the beginning of the flowering period at two-week intervals.
- Lettuce: 2 kg/ha in 400 – 800 litres of water
  1-2 times at the rosette stage at one-week.
- Potatoes: 2 kg/ha in 200 – 500 litres of water
  1 – 2 times during tuber initiation within 3 weeks

FORMS OF PACKAGING

20 kg bags

LIME- AND MOLASSES-BASED FERTILISERS, POTATOE NITROGEN CONCENTRATE

Sugar and starch production results in a number of valuable products which can be used to excellent effect as conventional or organic fertilisers.

CARBOKALK, DÜNGEMEL AND AMINOMEL

Carbokalk is rich in phosphorus, making it a very effective lime fertiliser. It also contains nitrogen. Carbokalk improves the soil structure, the stability of soil particles, the soil water and soil air balance, and increases soil fertility. DüngeMel and AminoMel are organic fertilisers derived from molasses, each containing potassium and largely organically bound nitrogen. As fertilisers created in the course of sugar being produced, Carbokalk, DüngeMel and AminoMel offer the possibility of returning to the soil nutrients that were initially removed by the beet-growing process – practised circular economy.

POTATO NITROGEN CONCENTRATE

Potato nitrogen concentrate contains significant amounts of phosphorus, potassium and organically bound nitrogen, and can be used as a cost-effective alternative to other fertilisers. Using potato nitrogen concentrate reduces the need for mineral-based fertilisers and represents another way to achieve a closed circular economy, especially when growing potatoes.

FORMS OF PACKAGING

Bulk

APPROVED FOR USE IN ORGANIC FARMING*

* According to the EU-Eco-regulation 834/2007

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