K select

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select

The key to success

The equipment and production resources in professional nurseries must work together flawlessly. The growing medium plays an important part in this. It combines the different elements into a perfect whole. But this means that the demands placed on a substrate are very high. The Klasmann select product line provides the optimal solution. On the following pages, you can learn more about Klasmann select and the expertise of Klasmann-Deilmann – the key to your success.

select Individual solutions

Klasmann select makes individual solutions possible. The specific crop, the growing method and the equipment are taken into account as are the geographical, climatic and seasonal factors. 100 years of experience in the extraction and preparation of peat raw materials as well as four decades of innovative expertise in the development and production of growing media contribute to every substrate of the Klasmann select line. A substrate of the Klasmann select line is the sophisticated special solution for complex requirements.

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Realise the goals of our customers

The launch of the Klasmann select and Klasmann easy growing product lines represents a further logical development of the substrate brand Klasmann. Dr Norbert Siebels, Managing Director of Klasmann-Deilmann, Dr Horst Kupschus, Head of Sales Europe and Hermann Limbers, Head of Product Development and Advisory Services spoke about the background and objectives.

Klasmann-Deilmann is the leading company in the global substrate industry. The Klasmann brand has an excellent image and stands for top-quality growing media throughout the world. What is behind Klasmann select and Klasmann easy growing?

Dr Siebels: Klasmann select and Klasmann easy growing are two product lines under the umbrella of the Klasmann brand. They each underline major strengths of the Klasmann brand and cover a corresponding range of products.

What strengths are those?

Dr Kupschus: The strengths of the Klasmann brand are functioning, reliable growing media of consistent high quality that reflect cutting-edge research and the latest technological developments. The Klasmann easy growing product line, coming from our existing product range, are growing media that are most asked for by our customers. These are globally proven products. The strength of Klasmann easy growing is: optimal functionality. The emphasis of Klasmann select lies in individual substrate solutions for special applications. The strength of Klasmann select is: top innovative performance.

Will the Klasmann brand be improved as a result of two product lines?

Limbers: It goes without saying that we aim to constantly improve our substrates. At the same time, we are proud of the fact that Klasmann substrates always have the highest possible quality. With these products lines, the brand stands for what it has always stood for: top innovative performance with optimal functionality.

Dividing the brand into the Klasmann easy growing and Klasmann select product lines has further sharpened its profile?

Dr Siebels: Klasmann select and Klasmann easy growing are the answer to the huge developments in international commercial horticulture in the last few

years. Viewed globally, modern commercial horticulture has become a clearly segmented industry. With the increasing application of technology and mass production in many plant nurseries, a process of standardisation in every sense has begun and can no longer be reversed. In contrast, we are observing the specialisation of numerous commercial growers in special crops or particular cultivation methods. We are also observing a similar segmentation in the requirements for our growing media. On the one hand, the reliably functioning, uncomplicated growing media we sell within the Klasmann easy growing line are clearly needed. Against that, the individual demands for specific growing media are increasing. Certain nurseries require special substrates in order to achieve certain results. Within the Klasmann select line, these sometimes highly complex recipes find an appropriate answer. By serving both these needs, we fully take into account the development in commercial horticulture I have described.

Dr Kupschus: On the sales side, we have come to realise that two product ranges are needed to be able to reply to the requirements of commercial growers. The substrates included in the Klasmann easy growing product line are our bestsellers. These are fully developed, tried-and-tested substrates for a multitude of applications. In truth it is the commercial growers from all over the world who have put together this product range, because they, time and again, demand the substrates of which the Klasmann easy growing product line is formed. It was simply time to define a specific product line.

Limbers: We offer the Klasmann select product line as a complement to easy growing because we aim to continue providing growing media that are specifically tailored to a given plant nursery. The focus with Klasmann select is in developing special purpose substrates for special applications. To achieve this, we can make use of the innumerable combinations of different raw materials, additives and fertiliser formulations as well as the ratios in which they are blended.

Klasmann-Deilmann has several hundred different recipes for growing media. Don't these already cover all the needs? Or to it put another way: can there be yet more products that may be adapted to modern requirements?

Limbers: No grower wants to orient his methods to the growing medium, the substrate must instead be adapted to his ways. The substrates of the Klasmann easy growing line are perfectly suitable in many cases. But sometimes a nursery may have unusual requirements that play a decisive part. This could be a crop that's very demanding or a special cultivation method, it could be climatic or geographical factors that give rise to the need for an individual solution. With Klasmann select, these growers too get exactly what they need. And often, in such cases, an entirely new product is the only one suitable for that particular nursery.

A substrate of the Klasmann select line is therefore very complex?

Limbers: The challenge is to continually readjust to the requirements of an individual nursery. Herein lies the strength of Klasmann-Deilmann. Klasmann select means dialogue. Our experts work closely with the grower. The requirements for a special substrate and its composition are discussed jointly. The production of a substrate is strictly controlled by our technicians. Our experts even give advice and assistance for the use of the substrate during cultivation. The Klasmann select segment is certainly complex and requires intensive advice – but brings results, because we are subject to the same standards of perfection as with everything we do.

Dr Kupschus: Besides the “savoir faire” of product development and substrate production, personal contact with the grower is one of the main factors for success – for us and for him. Half measures lead to half the success. Anyone who comes to Klasmann-Deilmann always deals with experienced and objective specialists. Our experts propose solutions that bring successful results.

Individuality, dialogue, perfection. The claim made for substrates of the Klasmann select line is a high one.

Dr Siebels: Justifiably. The Klasmann select product line combines all the expertise of 100 years of dealing with peat raw materials and decades of experience in commercial horticulture. Klasmann select is the heart of Klasmann-Deilmann. The segment demands constant innovation, excellent performance and flexibility. With Klasmann select we show above all that our know-how is at the disposal of the customer. We are not aiming to achieve for ourselves, but to realise the goals of our customers.

Dr Norbert Siebels
Managing Director

Dr Horst Kupschus
Head of Sales Europe

Hermann Limbers
Head of Product Development and Advisory Services

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JURGENS
FORTUNA
Optimator
1000 IN 20/1
mL in 20°C
1000
800
600
400
200
JURGENS
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1000 IN 20/1
mL in 20°C

K select

At home in commercial horticulture

The Klasmann-Deilmann product development and technical advice department is staffed by experienced professionals who are thoroughly familiar with commercial horticulture around the world. They follow all the most important developments, keep track of the trends and see to it that substrates of the Klasmann select line meet the toughest requirements. To do so, they use the wide range of alternatives from the company's own high quality raw materials, organic and inorganic admixing agents and various combinations of nutrients. Our horticultural technicians choose the right components, determine the optimal blend ratio and make sure the specifications for the recipe are precisely adhered to in production.

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In dialogue with the plant nursery

The most important benchmark for the Klasmann select product line is the individual plant nursery. When it comes to preparing a high quality substrate blend, there is no substitute for comprehensive consultation on site. Klasmann-Deilmann technical advisers are in regular contact with customers. This joint product development process ensures that the special substrate is perfectly tailored to the circumstances and conditions of the nursery concerned. The technicians continue to assist their customers with advice during the growing cycle. Analysis of irrigation water, fertilizer solutions and any cultivation problems followed by consequent recommendations, are standard services.

Klasmann-Deilmann is a member of the quality assurance system of the Dutch RHP Foundation and may call on their network of technical experts, which provides additional support in almost all areas of commercial horticulture.

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Root sensitive crops

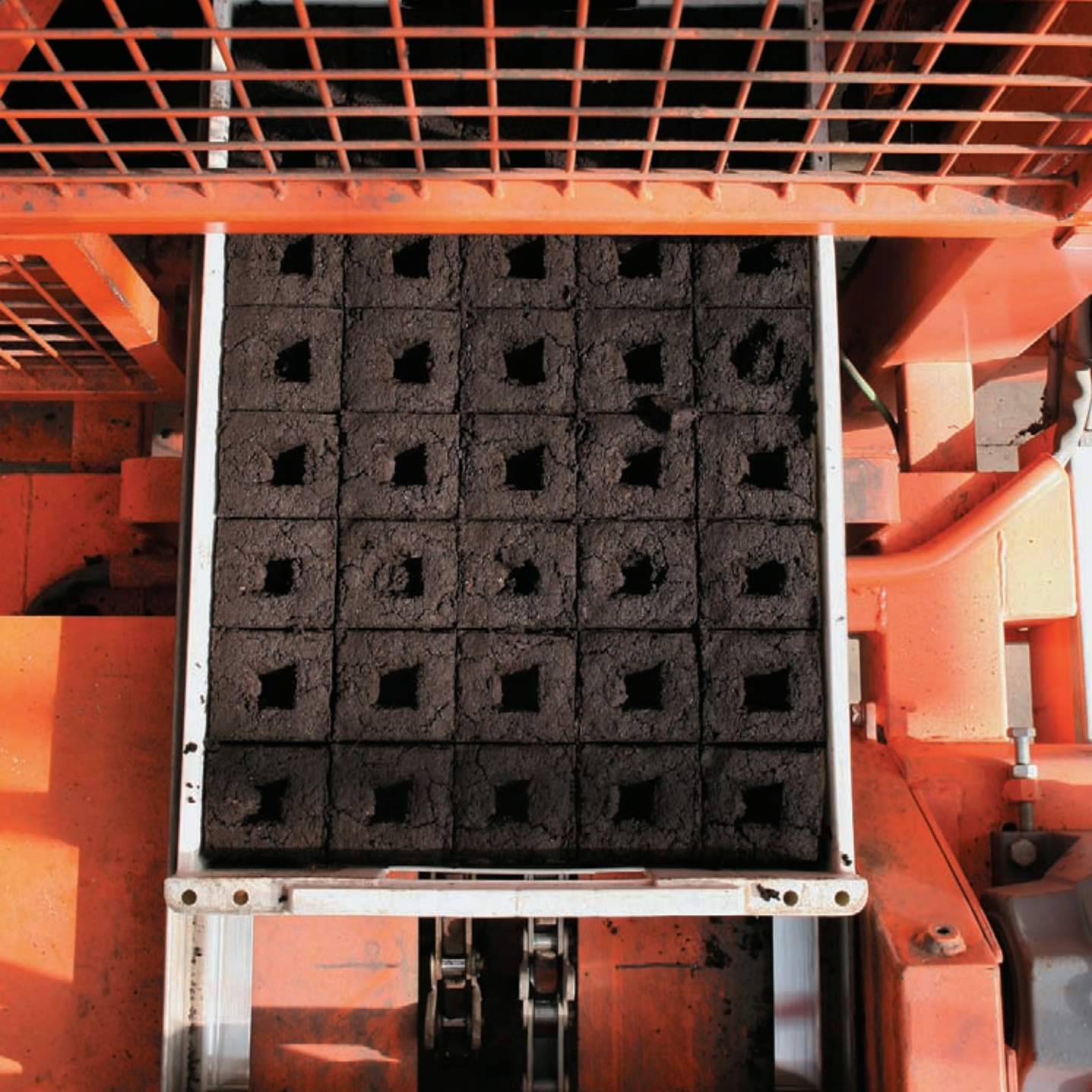
For growing-on of bromelias, anthuriums, spathiphyllum and root sensitive foliage plants with long growing periods, structurally stable substrates with a high air capacity are required. For a whole series of very different speciality nurseries, a full range of Klasmann select growing media has been developed. Their air retention capacity remains consistently high throughout the growing cycle and their exceptional structural stability prevents compacting of the substrate. With a very small percentage of fine material, blends of stable white peat fractions and selected admixing agents achieve optimal capillary water distribution, especially when using drip irrigation and ebb-and-flow systems.

K select Cultivation of pot plants

Modern irrigation systems demand substrates that guarantee uniform air capacity and high structural stability as well as reliable drainage and optimal capillary water distribution. For pot plants, Klasmann select recommends substrate solutions based on stable white peat fractions of sod peat. For poinsettias for example, this guarantees an air capacity of over 15% of volume; for sensitive crops with a particularly long growing cycle such as foliage plants, palms and calatheas, the air capacity is over 25% of volume. To assist the blue coloration of pot hydrangeas, substrates are boosted with aluminium sulphate and the pH-value is adjusted accordingly. Individual solutions are also possible for pot chrysanthemums and pot roses as well as primula obconica and many other plants.

select Nursery stock and ericaceous plants

For nursery stock as well as for the growing of ericaceous plants – i.e. azalea, erica and calluna, Klasmann select offers substrates that are tailored to local horticultural conditions and to the salt tolerance and required pH-values of the crop. Coarsely fibred structures that can guarantee drainage are the basis of all nursery stock substrates for container use. The requirements of rhododendrons can be met by adjusting the substrates through the addition of sod peat and wood fibre. In the case of special substrates for container roses, the buffer capacity is increased by adding clay. Root sensitive pines, on the other hand, require substrate solutions with a high percentage of drainage enhancing admixing agents such as volcanic stone pumice and pine bark. Potting substrates for growing of ericaceous plants are adjusted by, for example, adding fractionated sod peat. The proportion and structure of the sod peat is chosen according to the size of the pot and the growing method so that air capacity and drainage can be optimised for even a 9 or 10 cm pot size. The pH-value is adjusted by using fast reacting lime and high magnesium content.



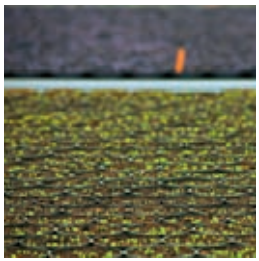
K select

Production of young vegetable plants

Klasmann select line propagation substrates for young vegetable plants in press pots and trays are based on high quality, frozen black peat. The carefully balanced combination of raw materials in these press pot substrates ensures that young vegetable plants turn out healthy, hardy and compact, have active fibrous roots and, with optimal feeding, remain manageable within each batch. The substrate water content can be precisely adjusted. The result is a substrate perfectly adapted to any press pot machine as well as stable press pots for automatic planting machines. Tray substrates of the Klasmann select line consist of finely screened black peat and white peat types of different origins. The ratio of black to white peat in these substrates is adapted to the specific season, irrigation water and crop. The addition of a wetting agent ensures easy wettability of the substrate.

K select Propagation

For the propagation of young plants, Klasmann select offers substrates based on screened white sod peat with a low proportion of fine material, which are precisely and uniformly fertilized. For the manufacture of very finely structured propagation substrates for trays with very small cell sizes, the raw material is graded with a special flip-flow 8 mm screen. This unique technology ensures that the products can be processed without difficulty on filling lines all over the world. All propagation substrates are shipped directly after manufacture in order to avoid undesirable effects through storage.



K select Organic substrates

Organic substrates of the Klasmann select line benefit from intense contact and discussion with plant nurseries and associations specialised in organic growing. Organic press pot substrates with peat content reduced by up to 40% assure trouble-free processing on all press pot lines and produce perfectly formed and stable individual pots. Adapted summer and winter mixtures are available as well as special mixtures for larger press pots for tomatoes, cucumbers and peppers. Organic herb substrates contain up to 50% peat substitute, quality green compost, coco and wood fibres, clay and sand. Full fertilization programmes are available, combining easily with liquid fertilizers chosen by the nursery. All fertilizer options are free of genetically modified material containing, for example, horn powder and shavings from BSE-free countries as well as potato protein or fermented residues from corn oil production.

The production method for organic substrates is subject to inspection and control by an independent EU inspection body. Organic substrates conform to the guidelines and requirements of organic growers' associations in Germany, Austria and Switzerland. Klasmann-Deilmann is a member of Ökoring Niedersachsen e.V.

K select Green compost

For the production of organic substrates of the Klasmann select line, high quality green compost manufactured in our own composting plants is used. This quality compost is based on green waste that is subject to regular inspection, as are the collecting centres. The composting process is continuously monitored through extensive nutrient analyses, growth tests and temperature checks. Along with in-house quality checks, the tests required by the Quality Assurance Association for Compost, by the RHP, as well as by the EU's organic inspection body, are all carried out. Klasmann-Deilmann also uses organic composting methods in composting plants.

Quality criteria for compost	
Salt content	< 2.5 g/l
Nitrogen (N)	50–150 mg/l
Phosphorous (P_2O_5)	800–1,200 mg/l
Potassium (K_2O)	1,500–2,000 mg/l
Chloride	< 500 mg/l
Sodium	< 250 mg/l
Organic substance	25 %
Heavy metal limits	As per Council Regulation (EC) No. 2092/91
Organic pollutants	Screening for approx. 200 substances, 2 x yearly
Test for hygiene	Human pathogens: 4 x yearly, Club root: 1 x yearly
Plant tolerance	Tests on chinese cabbage, kohlrabi, salad from any batch

K select

The reliable base for growing media

Modern commercial horticulture requires growing media with constant chemical, physical and biological properties. Raised bog peat is the ideal base for these substrates. The peat raw materials of the Klasmann select line come exclusively from designated areas owned by the company and are controlled according to strict RHP standards. They are carefully extracted by ultra-modern methods and carefully prepared using special milling and screening methods. A broad spectrum of raw materials is therefore available for the production of substrates of the Klasmann select line.

Klasmann-Deilmann has extensive extraction areas in Germany, the Baltic and in Ireland as well as unique expertise in raw materials extraction and preparation.

Peat is free of plant diseases and growth inhibiting substances. It has constant chemical properties, ideal relationship of air and water retention capacities as well as a high buffering capacity. It contains humic acids to promote root growth and does not fix nitrogen.

Frozen black peat

When using frozen black peat in growing media, Klasmann-Deilmann makes its unique know-how count. The methods used for extracting black peat, perfected over many decades, ensure that the peat freezes thoroughly in winter.

Only fully frozen through black peat obtains properties that make it valuable for use in substrates: low shrinkage, consistently high water capacity, optimal air capacity and reliable capillary water distribution.

Thanks to these characteristics

- more highly decomposed black peat has greater adhesive capacity for better stability of press pots,
- black peat of medium decomposition optimises the air capacity in growing media,
- black peat fibre is an excellent component for container substrates,
- finely screened black peat is the ideal base for tray substrates and propagation soils.

White peat

The extraction method is of tremendous importance in the case of white peat. Klasmann-Deilmann uses methods of sod peat and surface milled peat extraction.

After extraction, sod peat undergoes a complex process of fractioning with the help of modern star screens. Exact graining, ranging from very fine (0–5 mm) to coarse fractions (25–45 mm), ensure stable air capacity in the substrate. Benefits are gained by selectively combining sod peat from Germany, the Baltic and Ireland in one product. This achieves optimal substrate quality in respect of structural stability, drainage characteristics and capillary water distribution, and therefore a high degree of reliability in terms of crop cultivation.

Klasmann-Deilmann primarily uses the vacuum process for collecting Baltic surface milled peat. With this method, the loosened white peat lying on the surface is sucked by vacuum into the harvesters. This method is gentle on the structure of the raw material resulting in stable air capacity with only a low proportion of fine material. This white peat is screened to the grainings very fine (0–5 mm), fine (0–10 mm) and medium (0–25 mm). When combined with white peat fractions, black peat types and admixing agents, this raw material is particularly suitable for the manufacture of high quality special substrates.

K select

Essential for every substrate

To achieve ideal blends for substrates, black and white peat are in many cases supplemented with additional organic and mineral ingredients. Product developers in Klasmann-Deilmann are thoroughly familiar with their properties and effects. They know which admixing agent must be used and in what quantity in order to obtain a given substrate property. Admixing agents of high quality are required in this respect. Admixing agents used for the Klasmann select product line are produced and controlled according to strict RHP standards. This includes control of the suppliers of these products, who are generally also members of the RHP quality assurance system.

Proven and new admixing agents are continuously tested for their suitability for substrates and are subjected to extensive growing trials in order to guarantee and further optimise the physical, chemical and biological properties of the substrates.

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Admixture ingredients and their effects in the substrate

Admixing agents	Air capacity	Drainage	Structural stability	Capillary water distribution	Water capacity	Wettability	Buffering	Exchange capacity of nutrients	Activity of micro-organisms	Stability of containers	Durability of the plants
Clay granules				●●	●	●●	●●	●●			●
Sub-surface clay, ground				●●	●	●●	●	●		●	●
Clay powder				●●	●	●●	●●	●●			●
Sand						●					
Pumice	●●	●●	●							●	
Perlite	●●	●●	●								
Vermiculite, expanded	●										
Wood fibres	●●	●●		●		●					
Coco fibres	●●	●●	●	●		●					
Coco chips	●●	●●	●●			●					
Coco, finely buffered	●	●		●	●	●					
Pine bark	●●	●●	●●								
Green compost				●		●	●		●●	●	●●

mineral
organic

● = good
●● = very good

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Optimal plant nourishment

For the Klasmann select product line, a system of fertilizer formulations is used enabling any basic fertilization required technically. In discussion with the grower, Klasmann-Deilmann technicians decide on the best basic provision for the growing media with regard to the needed plant nutrition.

The bases of fertilization are the RHP-certified NPK (nitrogen-phosphorous-potash) fertilizers, which contain all necessary trace nutrients. The target of a mix can be adapted to defined needs, irrespective of whether a reduction of phosphorous or nitrogen, reinforcement with a high-potash fertilizer or a balanced basic fertilizer is required. NPK formulas are supplemented with two-nutrient fertilizers that enable exact adjustment of the principal nutrients, nitrogen, phosphorous, potash, calcium and magnesium, according to the needs of individual crops. Over and beyond that, special trace element fertilizers satisfy any special requirements demanded by a particular plant. These trace element formulations have been developed in collaboration with leading manufacturers of mineral fertilizers.

- Trace element fertilizers with slow release action for field crops
- Chelated fertilizer types for foliage plants, bedding plants and potted plants
- Iron chelates for plants in need of iron
- Molybdenum fertilizers for poinsettias and for young vegetable plants
- Boron fertilizers in substrates for tulips

In view of the increasing importance of slow release fertilizers, only tried and tested, high quality and branded products that cover all cultivation requirements are used for substrates of the Klasmann select line.

This gives selective provision of nutrients for:
- fast root formation,
- compact plant development,
- hardening of young plants, and
- manageability of batches in young plant cultivation.

Moreover, it enables:
- compatability with subsequent liquid fertilizing regimes,
- ideal tuning to the properties of the irrigation water, and
- selective provision of nutrients in organic growing media.

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K select Substrate production

Growing media of the Klasmann select line are manufactured at our own production facilities in Germany, Lithuania, Ireland, Belgium and the Netherlands, all equipped with ultra-modern machinery and technical installations. A range of around 150 different peat raw materials, admixing agents, fertilizers and additives are used. Tested and certified base materials are transported to the production sites, stored under cover and strictly controlled, in order to exclude the risk of incorrect mixing or contamination. At all sites, substrate components are prepared and mixed using latest technical methods.

Screening systems
Peat raw materials are screened to the required substrate structure by different screen types. To obtain fine to medium substrate structures, Klasmann-Deilmann uses star screens; for coarse fibred structures, coarse sieves prevent wood or other coarse components from getting into the substrate.

Mixing and dosing systems
Every product has a recipe number and a defined recipe, the details of which are stored in the computer. After entering the recipe number, the computer controlled mixing plants produce the required


Waage 5
Waage 4

substrate with a high degree of reliability, accuracy and homogeneity. At the same time, all components are handled and mixed in such a way as to preserve their physical structure.

The constant flow rate of the basic substrate mixture on the production line enables precise addition of fertilizer and lime. The addition of ingredients is regulated by a feedback control system with continuous desired/actual value comparison and adjustment. These areas of the factories are heated all year round in order to reduce air humidity and prevent build up of fertilizer salt deposits.

Each mixing line winds up in a high capacity drum mixer that blends the components into the finished product.

To avoid contamination when changing products on the line, the so called “changeover quantity” is rejected and the machines cleaned. Special cleaning is undertaken prior to the production of organic substrates.

Packing and loading
Without going into intermediate storage, the finished substrates are either loaded onto trucks in bulk or filled into different packaging types. Every bag, bale or big bale is marked with its production code.

Measurement of the substrate volume is carried out in accordance with the European standard EN 12580, the standardised process for determining the bulk density of loose and packed substrates.

Records
The retained sample taken during production is visually examined and analysed in our own laboratory, then placed in cold storage for six months. For every batch, a production record of the mixing line used is also kept; this registers the quantities of substrate components used, the weight by volume and the produced quantity.

All production sequences are organised into standardised processes. The quality management system is certified DIN EN ISO 9001:2000.

K select Careful handling of nature's gifts

Klasmann-Deilmann took up the many challenges of environmental protection at an early stage. The extraction processes comply with the strict statutory regulations of the respective country. In addition, the company is involved in practical research on long-term conservation of bog landscapes and has extensive know-how on the re-saturation of former peat extraction areas. After peat extraction is completed, over the longer term these measures lead to the restoration of several thousands of hectares into typical bog landscape.

Re-saturation
After peat extraction, former areas are levelled and drainage ditches filled in. Polders of 5–10 ha, created by the building of dykes, regulate the level of rainwater. The aim is to colonise peat moss (sphagnum) and other plants characteristic of peat bogs and re-establish a typical bog landscape.

Agricultural after use
Former extraction areas are turned over using the “inversion method” to create soil with a ratio of around 1/3 residual peat to 2/3 underlying sand. The water-impermeable hard underlayer is broken up at the same time. This results in typical north German sand mix or deep plough cultivation. The ditches necessary for agriculture are created imitating natural ditches: one side of the ditch is formed as a wet bank with a slope of varying gradient and planted with indigenous trees and woody plants. The other side of the ditch must remain solid for vehicles for clearing purposes.

Natural succession
Former extraction areas are levelled and ditches filled in. These areas are left to evolve by themselves with no further measures. Succession areas are often buffer zones between re-saturated and agricultural areas.

Afforestation
Former extraction areas are prepared in the same way as for agricultural after use. These areas are then planted with a mixture of indigenous trees and woody plants.

Composting
The company makes a further important contribution to environmental protection with the production of quality composts and their use in biosubstrates for nurseries growing organically.

select

The key to success

At every stage, from product development through substrate production to use in the plant nursery, Klasmann select guarantees a maximum of quality, reliability and variety. High-quality components are tailored to the desired application to ensure that the substrate works faultlessly in the nursery and enhances crop development. Klasmann select enables individual solutions for the most complex demands. That is what makes special substrates of the Klasmann select product line the key to success.

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Concept and realization: www.prahl-recke.de | Photography: Karsten Handke, Markus Pietrek, Dirk Röse

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we make it grow