

Growing Media

Advantages of Lithuanian peat moss



Why is growing media so important ?



Germination

Root development

Plant growth

Plant quality

Financial result of the farm

How does it work ?

Most important aspects

Optimum physical properties ?

Structure - stability

Porosity

Air filled porosity

Available water capacity

Drainage

Rewetting

No physical obstacle to root growth

Optimum chemical properties ?

pH around 6,0 in water extract, stable

Low EC

No harmful element

Exchange capacity – buffer

Optimum biological properties ?

No weed

No pathogenic microbial life

Low level – no composting process

Most important aspects

- > **Optimum economical situation**
 - > **Availability**
 - > **Reliable quality**
 - > **Price**
 - > **More profitable crops**
 - > **Reduced amount of time needed until plants are saleable**
 - > **Improved plant quality**
 - > **Improved crop security, reduced losses**



Development of peat

Sphagnum peat from raised bogs



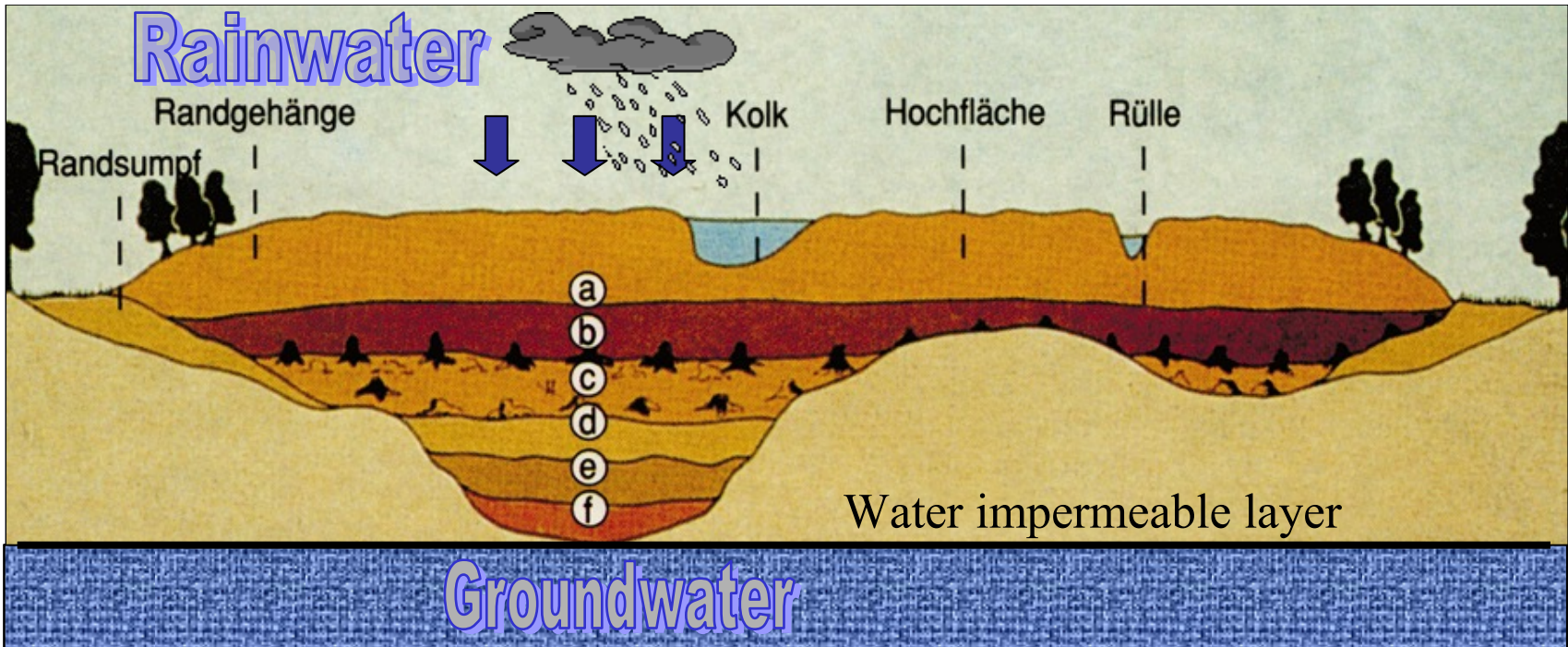
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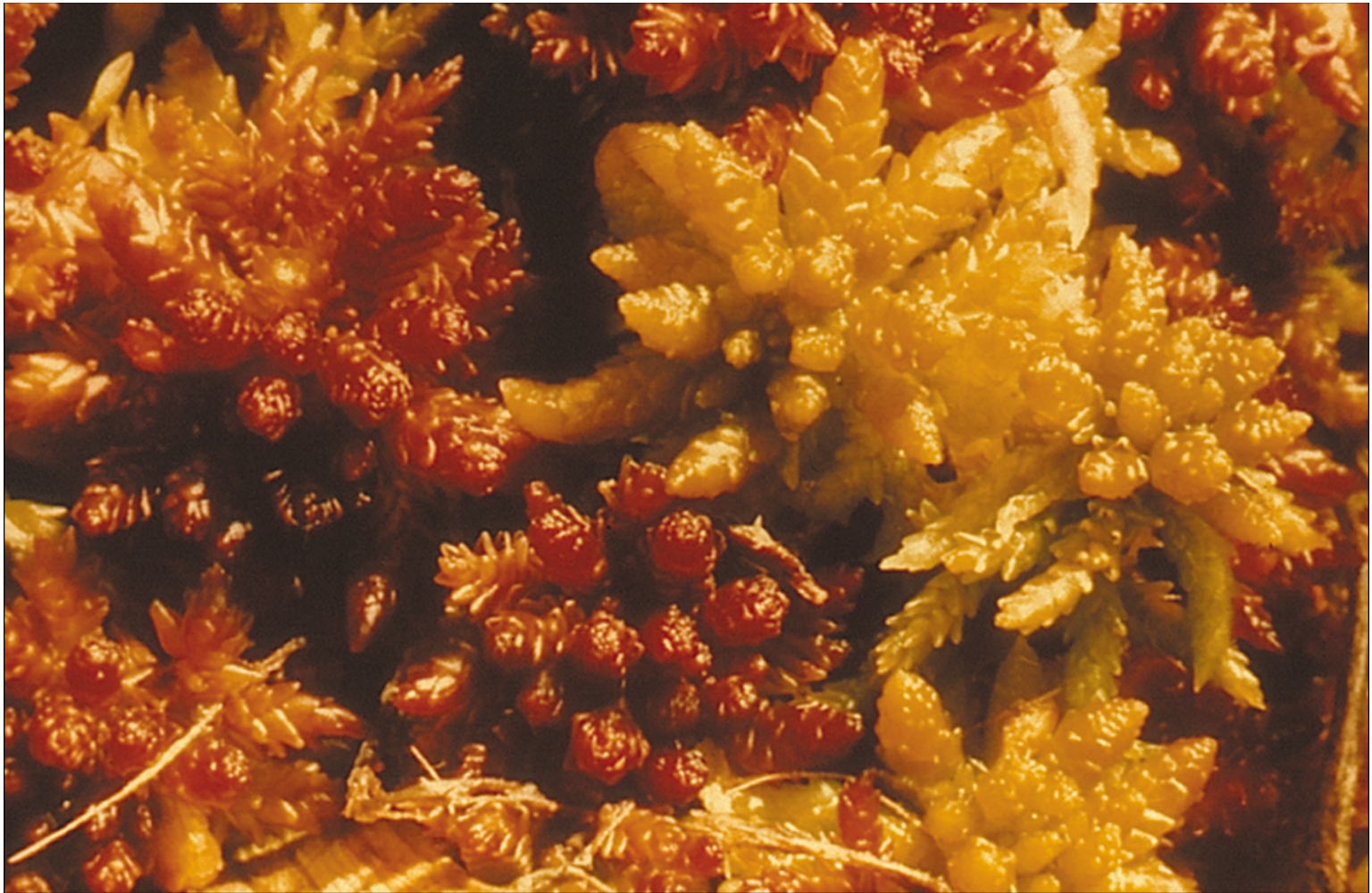
Development of raised bog peat

- 👍 Low EC level
- 👍 Low pH, 3,5 to 4,5
- 👍 Homogeneous composition



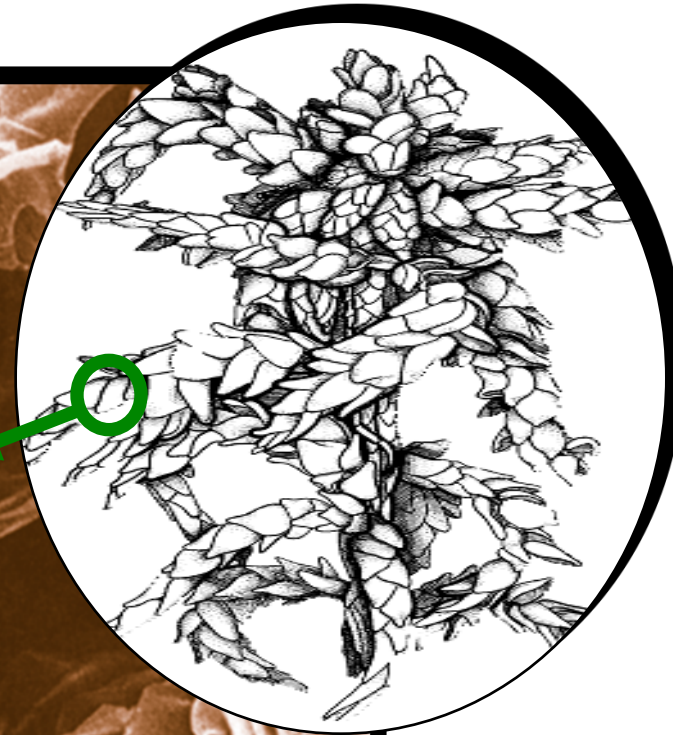
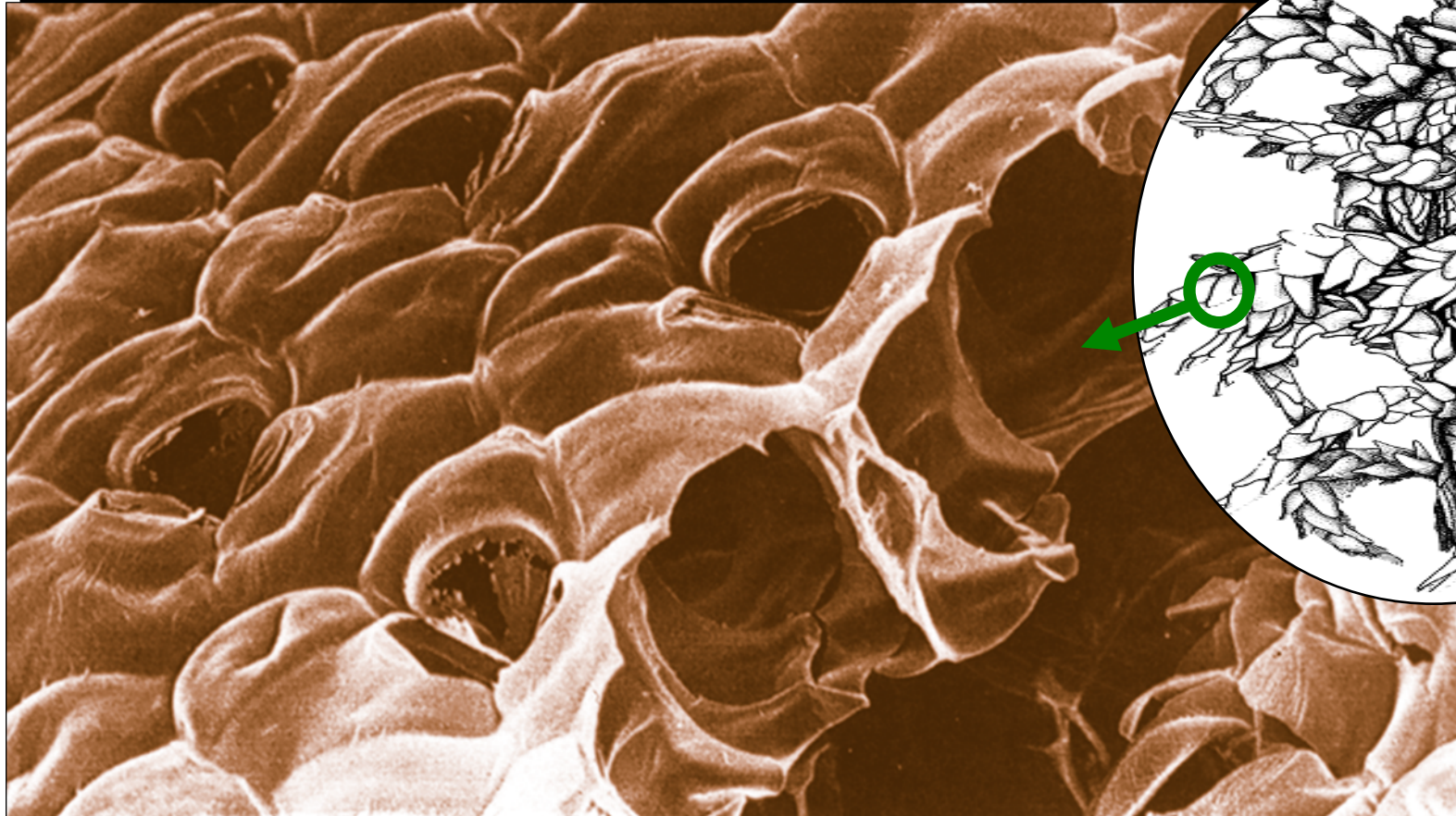
- (a) Less decomposed white sphagnum peat
- (b) More decomposed white sphagnum peat
- (c) Alder tree wood peat, above birch- pine- transitional wood peat
- (d) Sedge peat
- (e) Reed peat
- (f) Mudden
- (g) Mineral subsoil

Two large-leaved peat moss species (sphagnum papillosum)

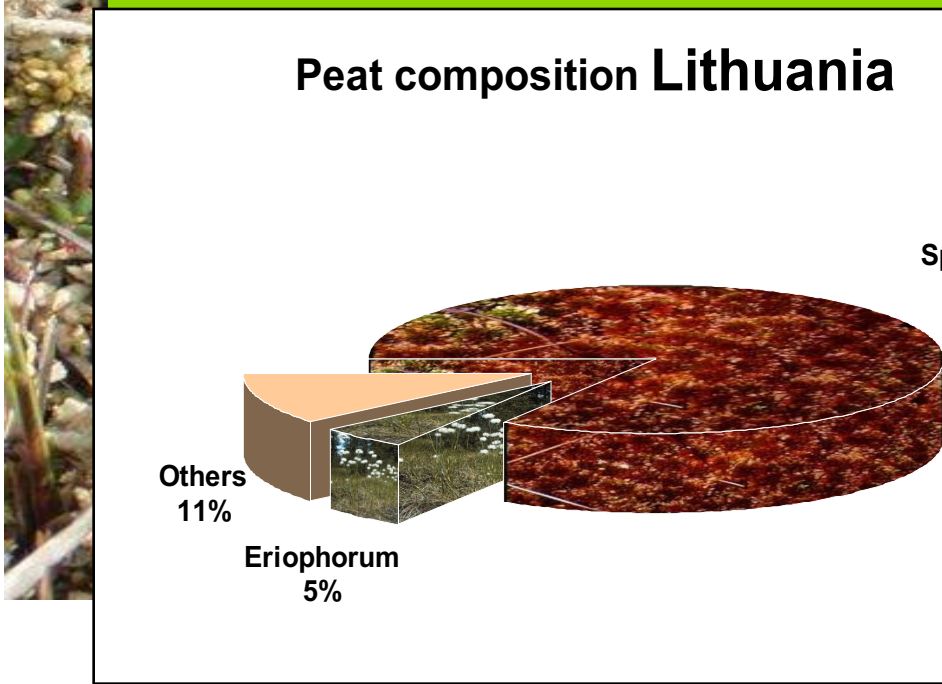
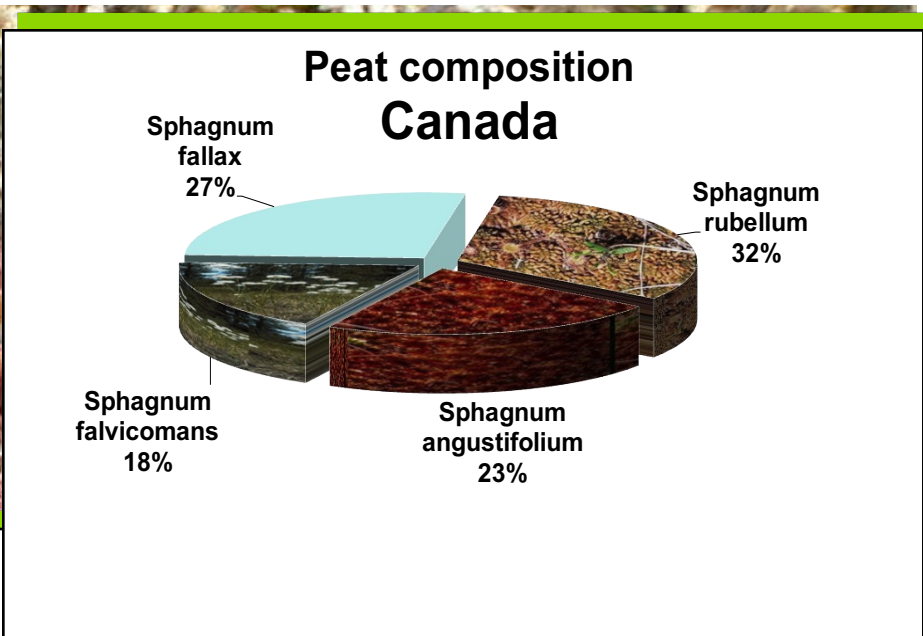


Micro-structure of peat moss species (*Sphagnum papillosum*)

POROSITY

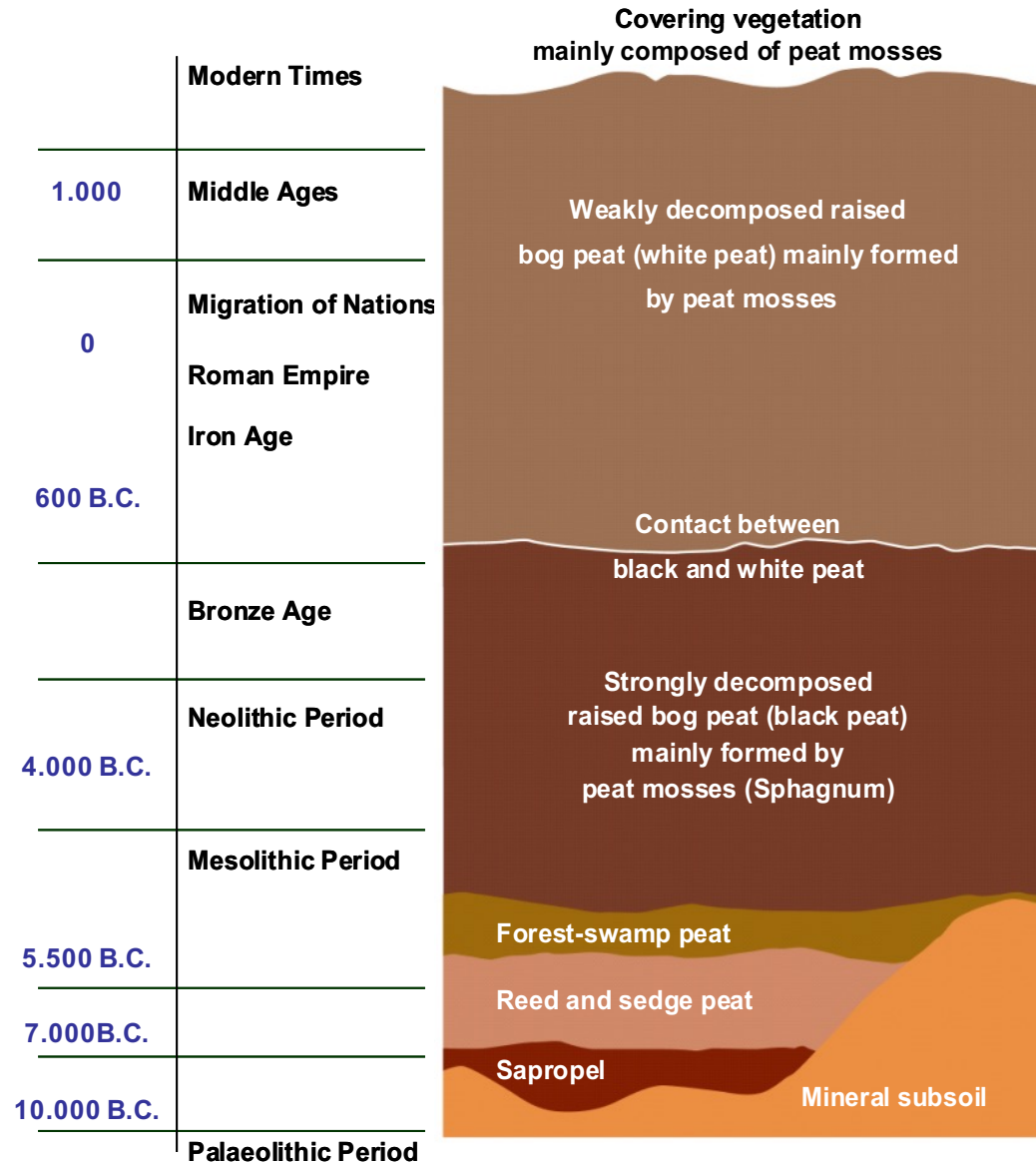


Composition of Sphagnum varieties

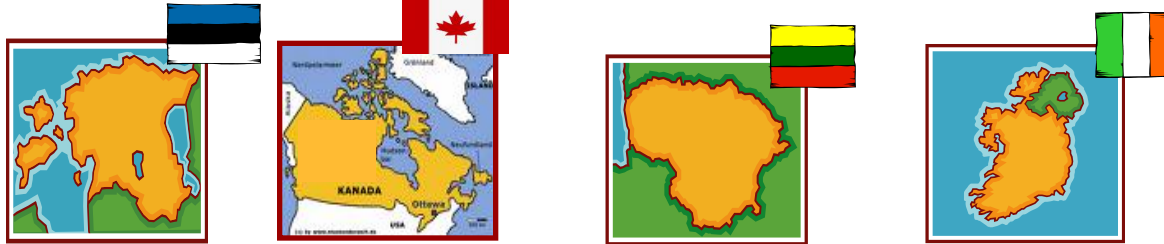


Age of peat bog

Sectional drawing

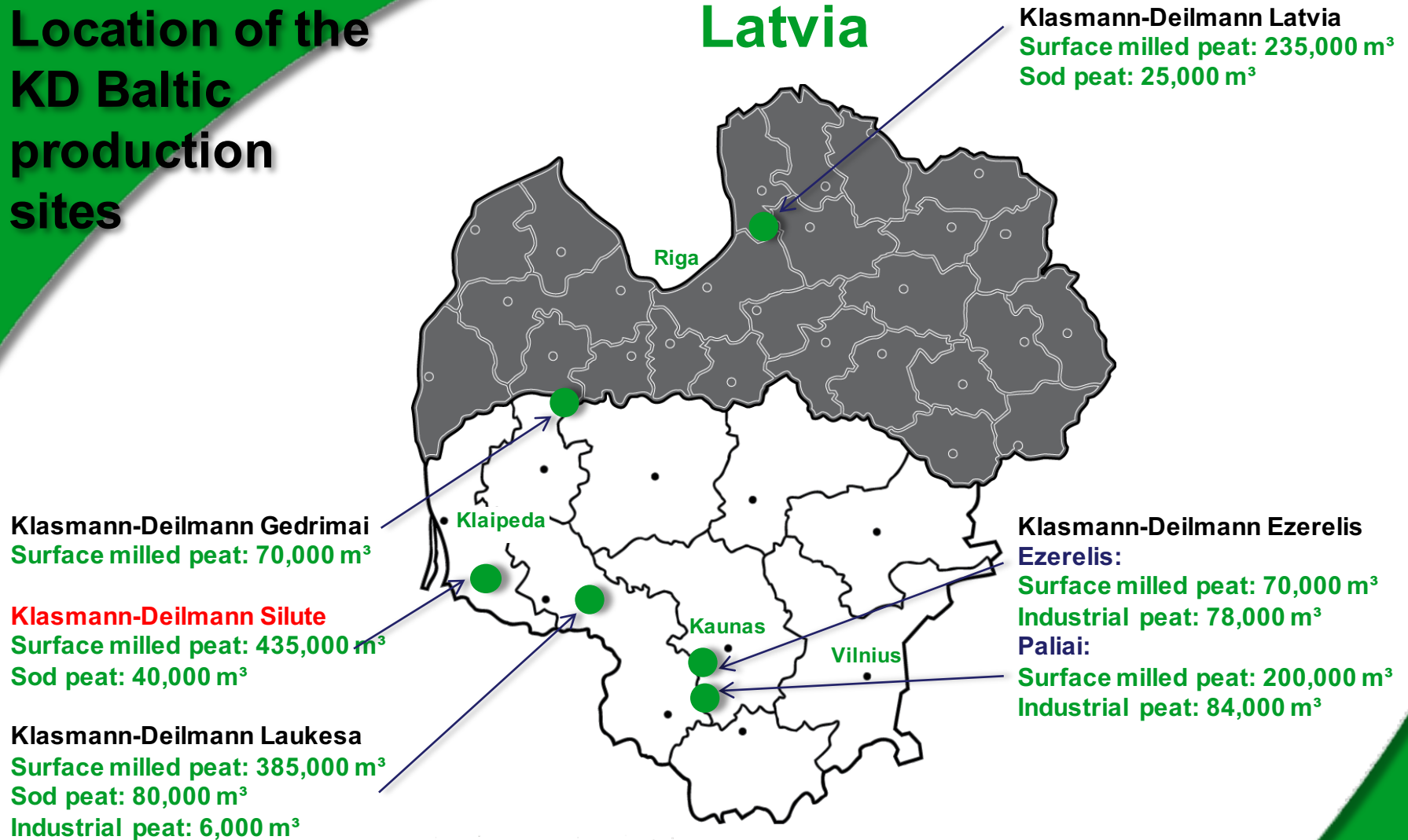


Origin



Estonia / Canada	Lithuania	Germany Ireland
Younger		Older
Finer		Coarser
Less structurally stable		Structurally very stable

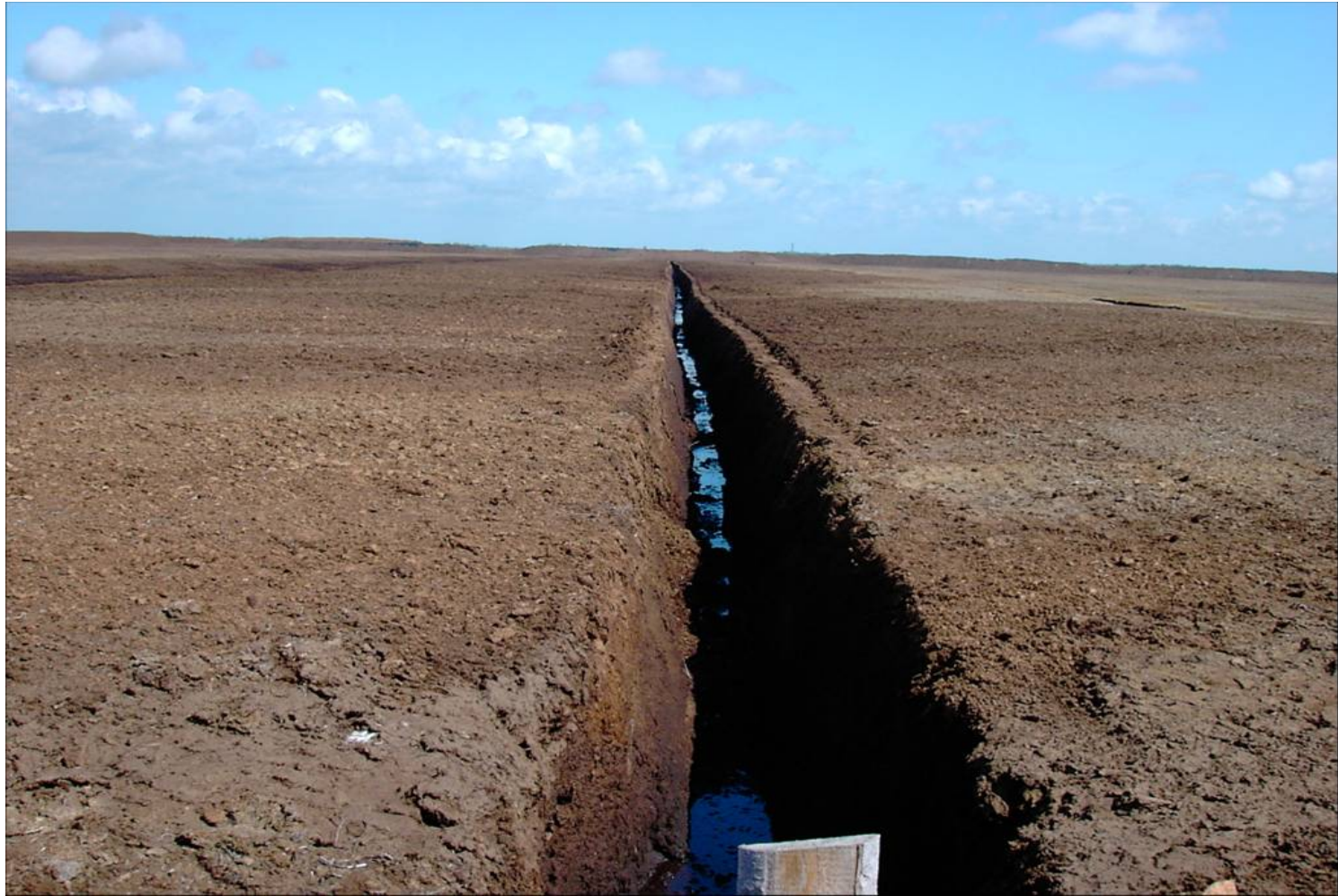
Location of the KD Baltic production sites



Peat harvesting and processing



Drainage



Harvesting techniques for White Sphagnum Peat

1. Surface milling technique - 2. Sod peat technique



White Sphagnum Peat

- Surface milling technique -



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White Sphagnum Peat

- Surface milling technique -



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White Sphagnum Peat

- Surface milling technique -



50-55% moisture level

White Sphagnum Peat

- Surface milling technique -





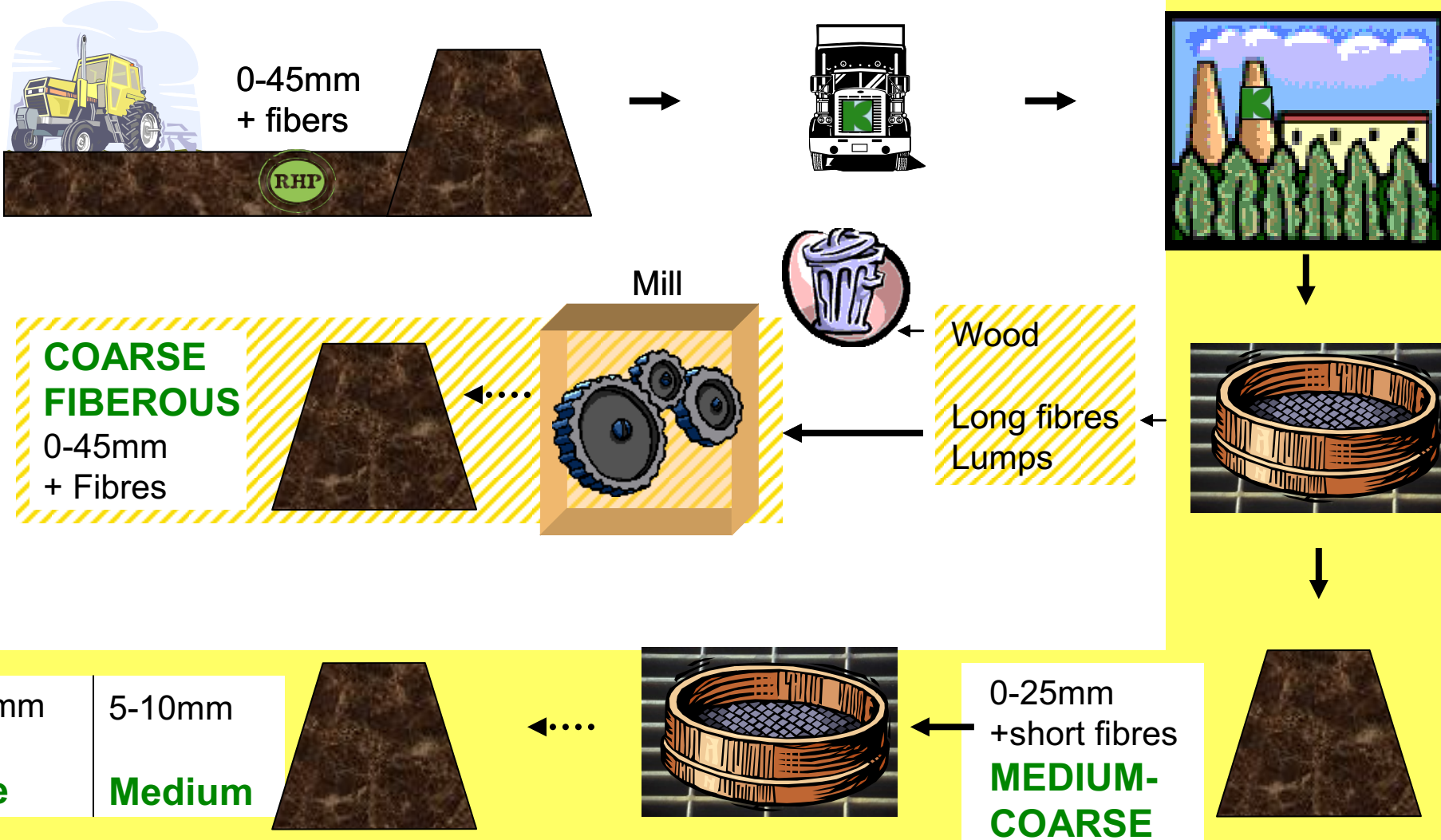
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White Peat

Surface Milled



White Sphagnum Peat

- Sod peat technique -



White Sphagnum Peat

- Sod peat technique -



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White Sphagnum Peat

- Sod peat technique -



White Sphagnum Peat

- Sod peat screening -

Fraction

1

2

3



Fraction

1

2

3

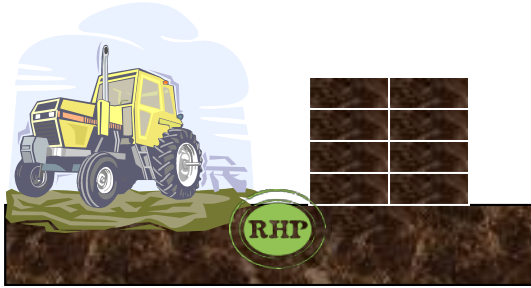
Grade

5-15 mm

10-25 mm

25-45 mm

White Peat Sod



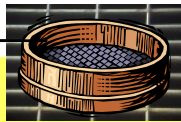
Breaker



Lumps
Long fibres
≤ 70 mm



Wood



Fr. ③

25 – 45 mm



Fr. ②

10 – 25 mm



Fr. ①

5 – 10 mm



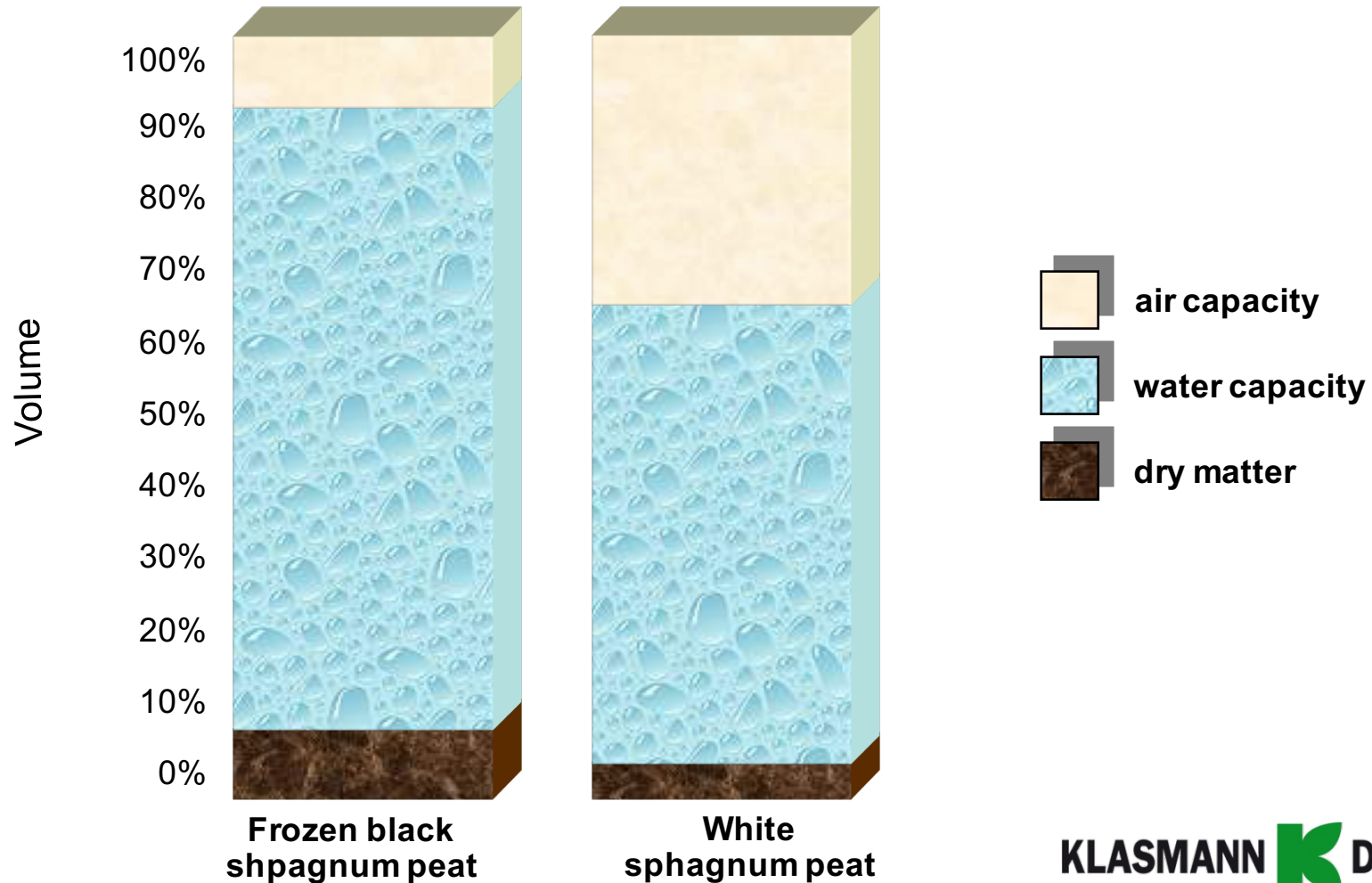
Fr. ①

0 – 5 mm



Physical Characteristics of white and black peat

(according DIN 11 540)



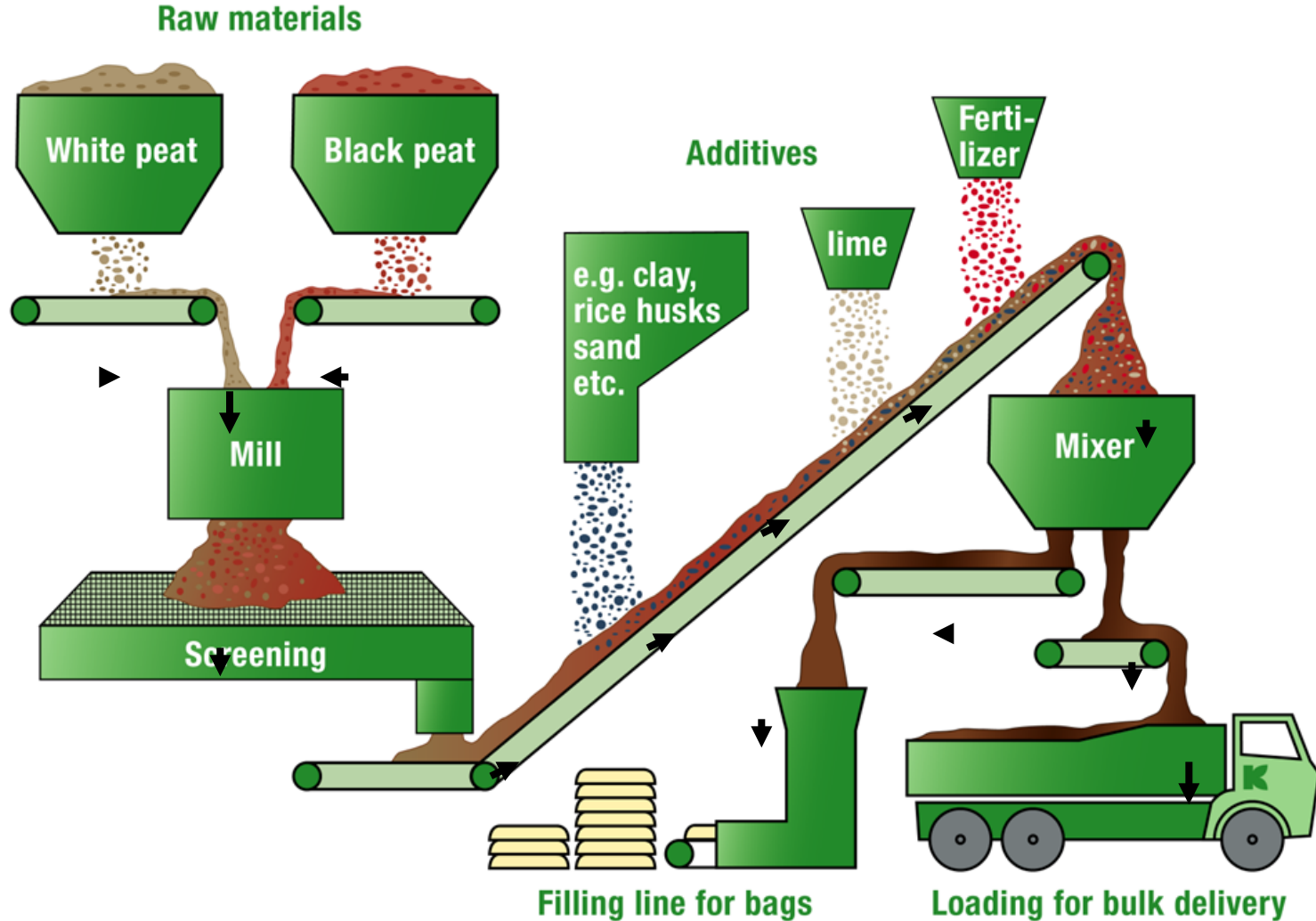
White Peat vs. Frozen Through Black Peat

Properties	White Sphagnum Peat	Frozen black sphagnum peat
Degree of decomposition (after v. Post)	H1 – H5	H6 – H10
pH (H ₂ O)	3.5 – 4.5	3.0 – 4.5
EC (mS/cm)	3 – 8	4 – 12
Organic matter (wt.-% in dry matter)	94 – 99	94 – 99
Total Exchange Capacity (meq/ 100g dry matter)	80-120	100-150
Porosity (vol.-%)	93 – 98	85 – 95
Water volume (%)	40 – 85	50 – 80
Air volume (%)	10 – 25	5 - 20



Substrate production

Production of substrates



Production of substrates



Klasmann-Deilmann Quality Insurance



ISO 9001:2000 approval



R.H.P approval

Substrate Quality

Internal quality check at Klasmann-Deilmann laboratories

Tested: pH, EC, structure, composition



Sample taking during production
for internal quality check



Sampling

- Sample volume
- Sub-samples -> final sample

External

Raw material - and ready-to-use product check

Computer controlled standardised production line for
production of substrates

- Time of sample taking
- No. of sample
- Coding of the sample



Storage for minimum
6 months

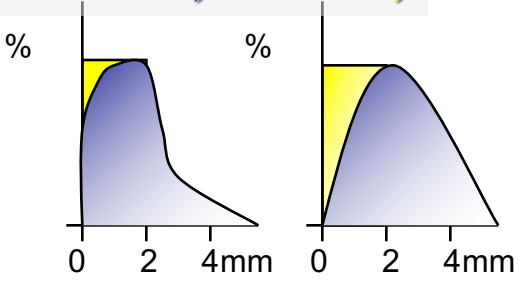
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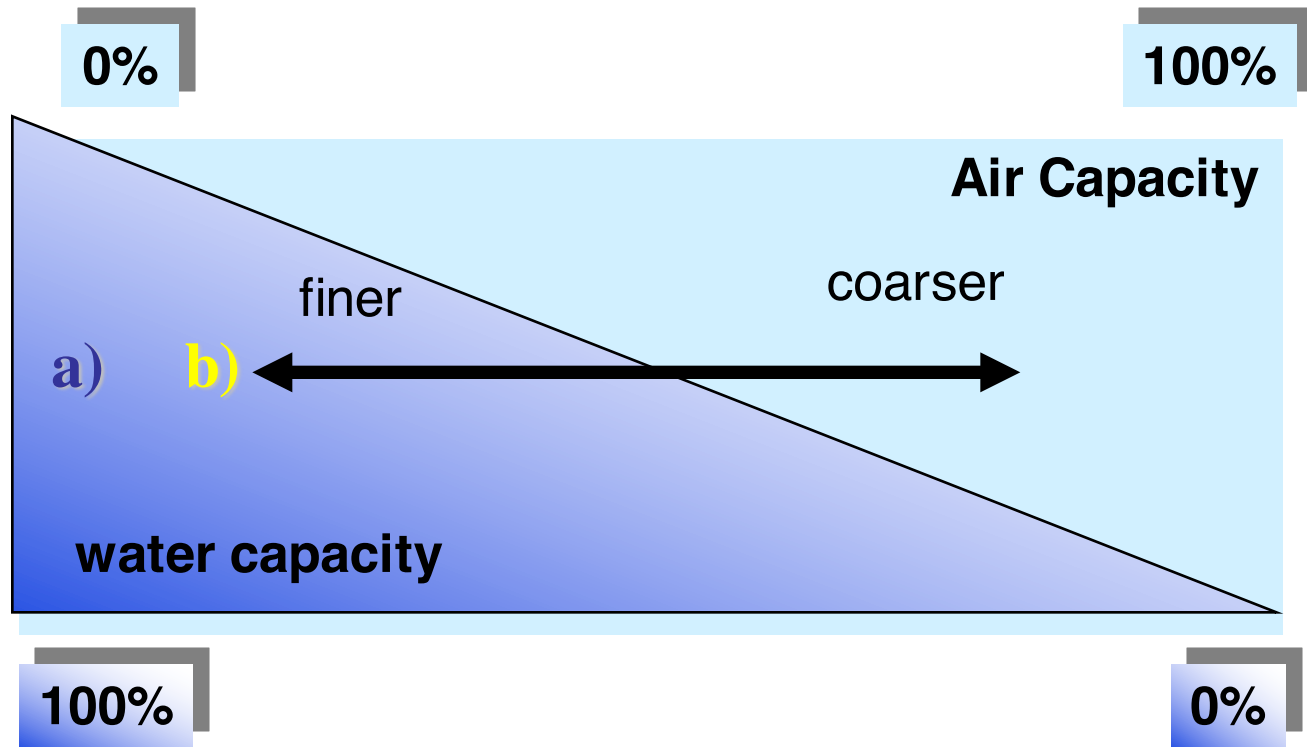
**Creating
Advising
Choosing**

a substrate ?

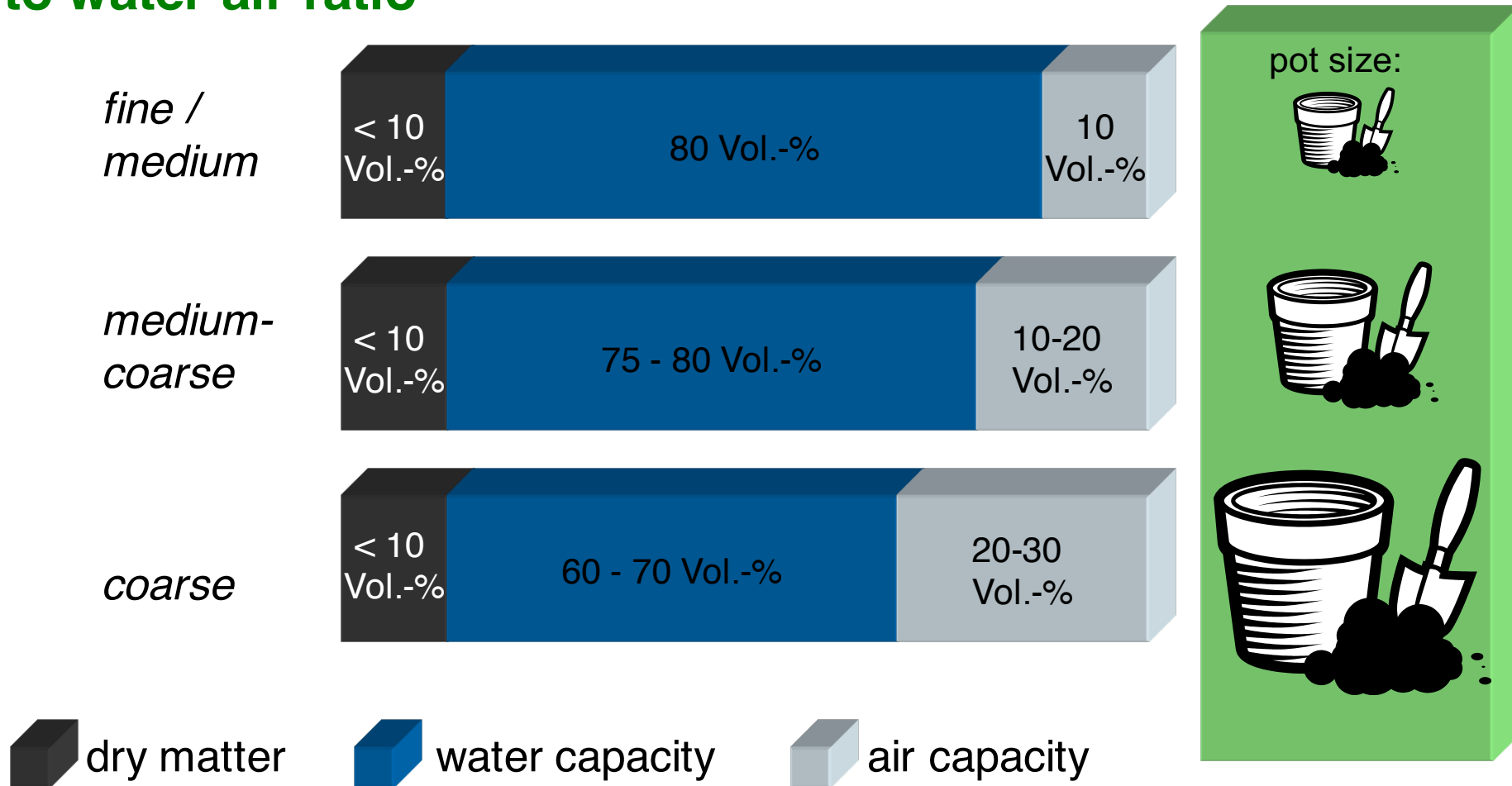
Situation **a)** **b)**



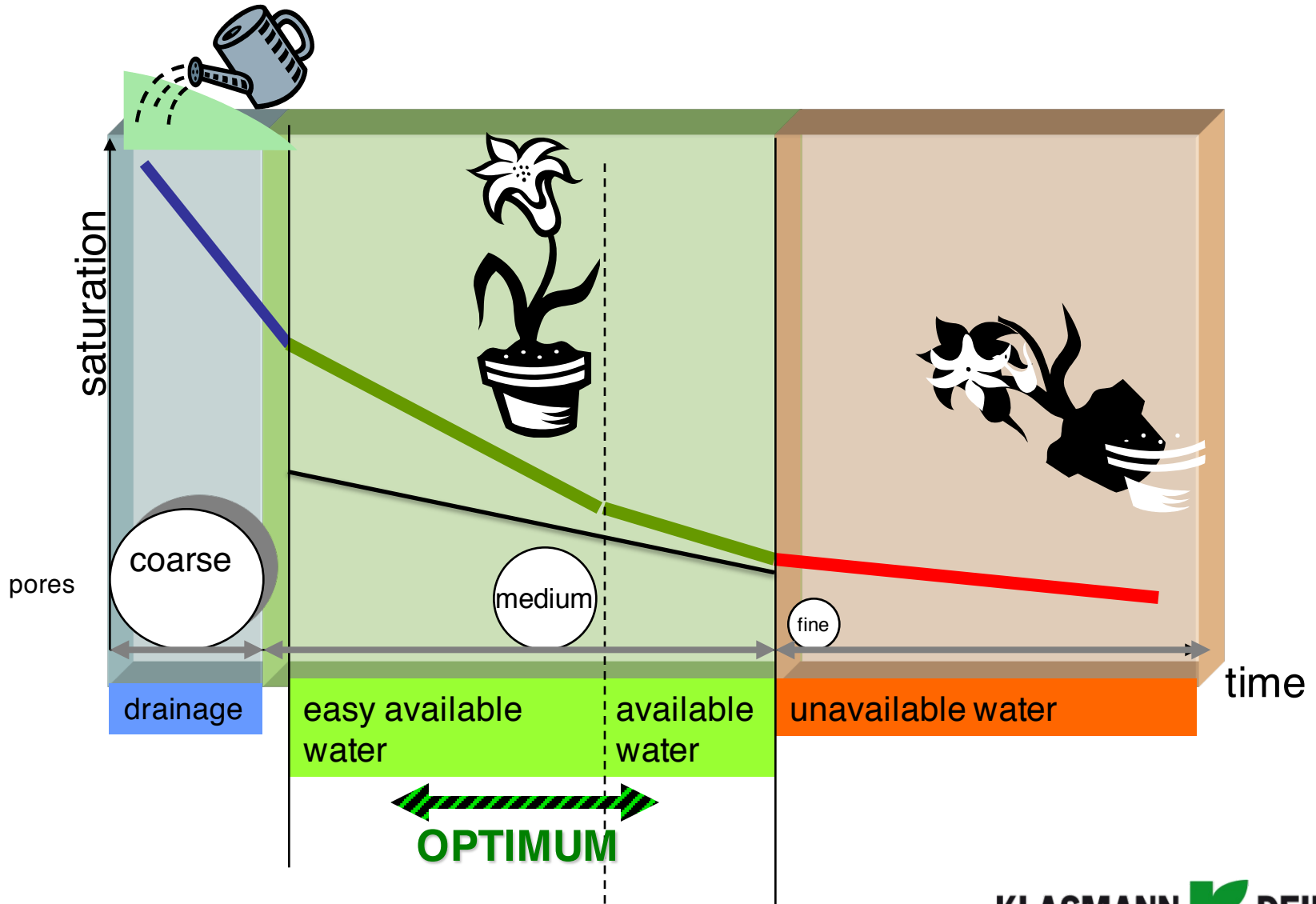
Substrate structure in relation to water-air-ratio



Substrate structure in relation to water-air-ratio



Water availability in the substrate – pF curves



General growing media requirements

1. Good pore volume with an even distribution
2. High air capacity with optimum water capacity
3. Good drainage capacity
4. Easy to re-wet
5. Structural stability
6. Optimum ratio of plant available nutrients
7. Low risk of leaching
8. Optimum pH level + stable
9. Free of plant pathogenic pests and diseases, free of weeds
10. Constant high quality at reasonable price

Why not using high quality peat ?

- Lithuanian Peat combines a lot of advantageous characteristics
- Substrate made of Lithuanian peat can be used pure
- They can be used in mixes to improve the properties of local available raw material



Environment ?

Harvesting



Re-naturing



Draining



Certified to ISO 14001



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