Beyond timber:
Market demand for forest innovations

Ilona Vanaga, JSC"Biolat"

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Turning side streams into products people actually buy

- Why now: side streams → circular, high-value products (not just energy).
- Where the pull is: strongest demand in **cosmetics** and **nutraceuticals**.
- What you'll get: market signals + a practical outline

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Timber, prices, and pressure = innovation window

- Forestry plays a crucial role in the economy of Latvia* – forestry, wood processing and furniture production accounted for 6% of GDP in 2023, while export volumes reached 3.3 billion euros or 17% of the country's total exports.
- Prices dipped**, then turned volatile: roundwood purchase prices in Latvia fell sharply in H2'23 vs H1'23 (e.g., spruce and pine sawlogs −14–17%).
- Costs rose**: regeneration costs ↑ 6.5–19.3%; tending costs ↑ 14.7–50.8% in 2023.
- Policy pressure*: new 5-year felling quotas (2025→) reduce maximum allowable felling by ~9.5% vs prior period.
- Ongoing volatility*: in 2024 H2 conifer prices rose while deciduous fell - signals remain mixed.
- **Implication: margin pressure + quotas = upgrade side streams (needles, bark, sawdust) into higher-value inputs.**

References:* LSM; **Central Statistical Bureau of Latvia;

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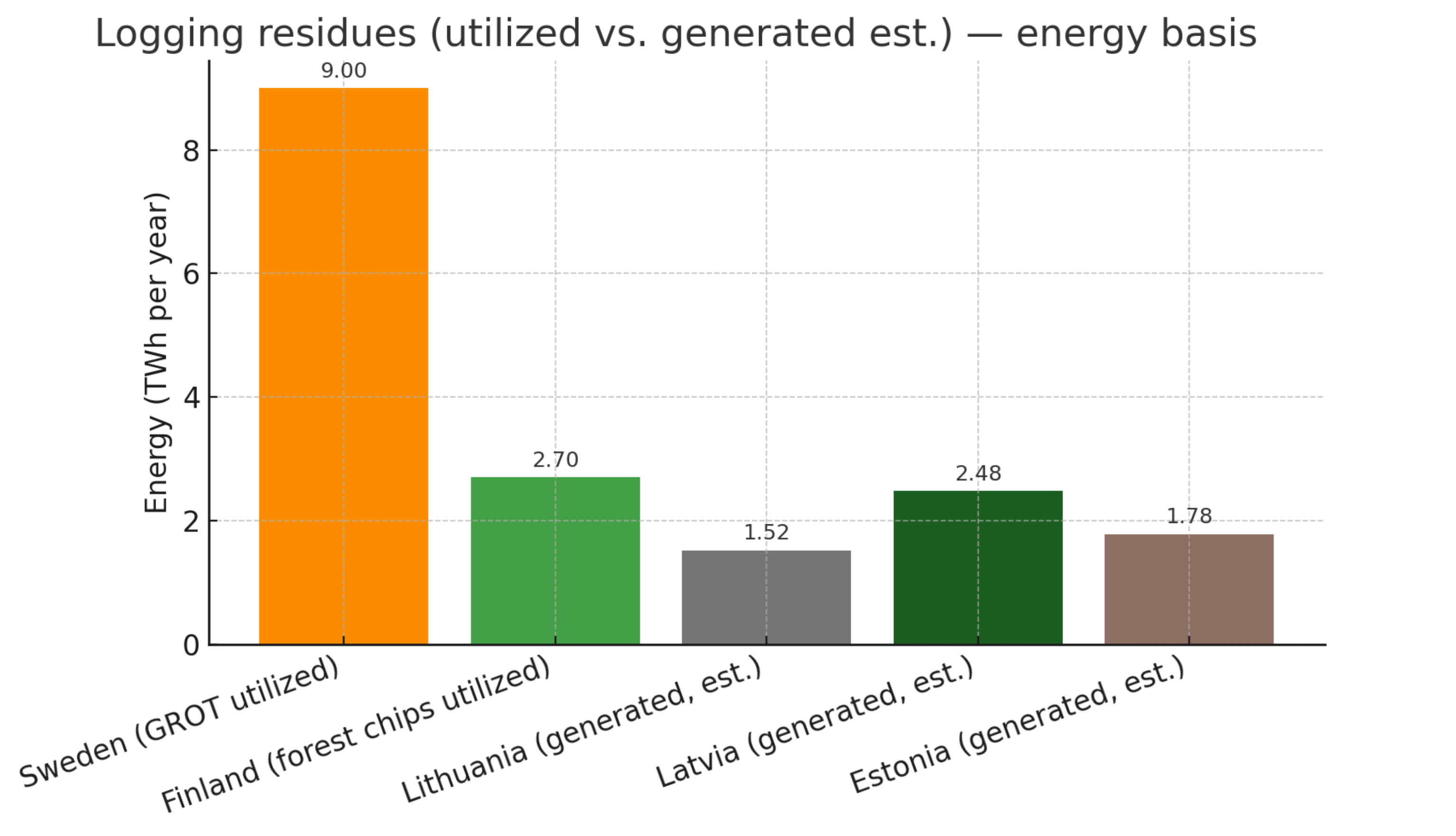

Assumptions:

- For LT/LV/EE, energy conversion uses **0.90** (depends on moisture content, species mix, chip size, bulk density).
- MWh per m³ of loose forest chips at ~40% moisture.

Formula: TWh = (million m³) × (MWh/m³) ÷ 1000.

Sweden: value reported directly in **TWh.**

Finland: converted from **3.0 Mm³** of utilized forest chips.

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From residues to revenue

- **Biorefinery = value engine:** turns bark, branches, needles into biofuels, biochemicals, nutraceuticals, and cosmetic ingredients.
- **Strongest pull today:** stakeholder data points to cosmetics & food supplements as top opportunities.
- **Example actives from conifers:** polyprenols, lignin, polyphenols, chlorophyll(-in) → antioxidants, antimicrobial, regenerative claims (when standardized).
- **Beyond lab talk:** real products exist in the market - e.g., polyprenols, Silbiol®, sodium chlorophyllin - bridging to cosmetics/nutraceutical use-cases.
- **Why it matters:** circular use of side streams reduces waste and creates premium inputs for SMEs.

Side streams (bark/needles/ wood fines) → Extraction/ standardization → Ingredient types (antioxidants, antimicrobials, regeneratives) → End-markets (cosmetics, nutraceuticals, biochemicals, biofuels)

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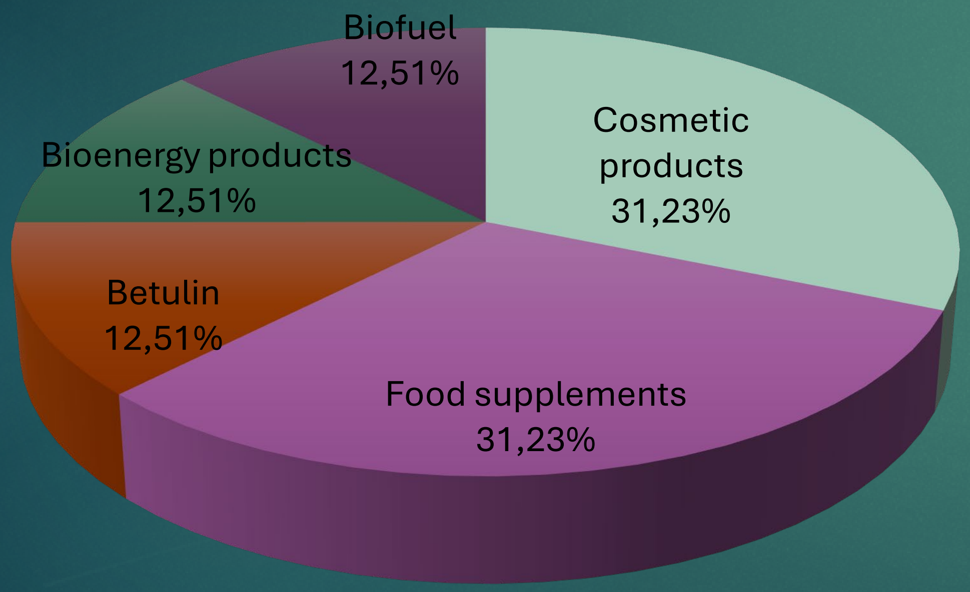
Demand signals & hurdles from the CEforestry survey

Promising consumer products



- **Top opportunities:** cosmetic ingredients and food supplements are the most promising product areas among stakeholders.
- **Promising consumer products:** cosmetics & food supplements lead, with bioenergy also visible.

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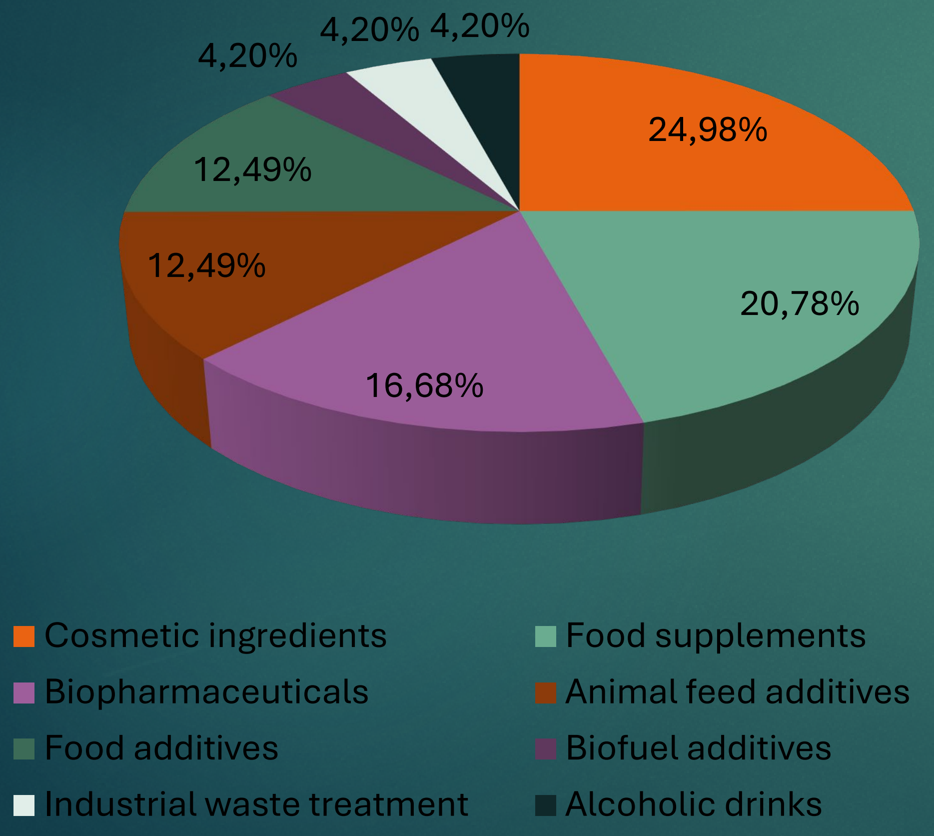
Demand signals & hurdles from the CEforestry survey

Promising biorefinery products



- **Key hurdles:** technology/scale-up, complex regulation, and high production costs.
- **Sentiment:** respondents are optimistic that policy support & tech progress will unlock growth.

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Biolat in CEforestry - bridging research and market

- **Who we are:** Latvian biotech (founded 1993)
  - specialize in natural bioactives from conifers using green extraction.
- **Core actives & products:** Sodium chlorophyllin (Ho-Fi Original), Silbiol®/Silvasept, polyprenols - designed for cosmetics, nutraceuticals, pharma use-cases.
- **Role in CEforestry:** contribute market research, circular business approach, and extraction know-how to valorize needles, bark, cones into high-value ingredients.
- **Fit to today's demand:** our actives map to antioxidant, immunity, anti-inflammatory and regenerative claims sought by SMEs in cosmetics and food supplements.

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What buyers actually want: practical asks from cosmetics & nutraceuticals

- **Clear benefits with data:** prioritize antioxidant, immunity-boosting, anti-inflammatory antimicrobial, regenerative claims tied to standardized actives
- **Low-friction formats:** ready-to-formulate ingredients with specs, stability notes, and INCI/labeling fit; cosmetic & nutraceuticals are the hottest near-term targets.
- **Trusted sustainability:** COSMOS/ECOCERT or similar eco-certs, plus greener methods (e.g., $scCO_2$) to support brand claims.
- **Partnership proof:** SMEs win faster by co-developing with institutes/brands to validate efficacy and speed scale-up.
- **Story that sells:** position on natural + circular (upcycled side streams) and target cosmetics/food supplements segments first.

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How to commercialize: a 12-month outline

1. **Partner up early:** co-develop with a research institute and an anchor brand to access validation, data, and routes to market.
2. **Brand the benefit:** lead with natural + circular positioning; highlight sustainability and health/skin benefits in claims
3. **Make it easy to buy:** deliver ready-to-formulate ingredients with specs/stability + clear INCI/labeling fit.
4. **Lock the compliance path:** plan certification and dossiers (e.g., COSMOS/ECOCERT), and map regulatory checkpoints.
5. **De-risk the tech & costs:** invest in greener extraction (e.g., $scCO_2$), iterate to improve yield/quality, and track unit economics.
6. **Focus your first bets:** pick one residue (e.g., needles) → one standardized active → one segment (cosmetics or food supplements).
7. **Fund smart:** pair grants with industry co-funding; look at Interreg/Horizon-type instruments for pilots.

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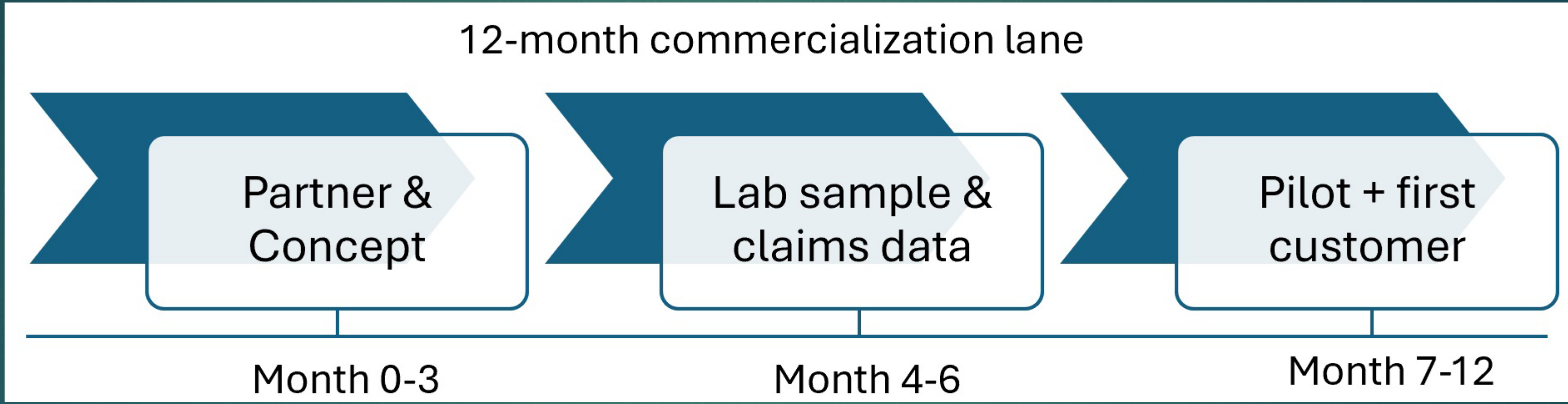

Thank you for your attention!


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Thank you
Time for a question