Forestry and the Circular Economy. Experience of the Republic of Belarus.

First Deputy Minister of Forestry of the Republic of Belarus
Mr. Valentin Shatravko

Ministry of Forestry of the Republic of Belarus
Dynamics of the Forest Fund Areas in Belarus, thousands of hectares
Dynamics of Forest Cover on the Territory of Belarus, %
Dynamics of the Total Stand Volume in Belarus, billions of $m^3$

- Total stands' stock
- Mature and overmature stands' stock

Year | Total stock | Mature and overmature stock
--- | --- | ---
2010 | 1.57 | 0.2
2015 | 1.71 | 0.26
2019 | 1.81 | 0.35
• Thanks to the purposeful activities of foresters, a qualitative improvement of the state of the forest fund is also taking place.

• In the forests of the Ministry of Forestry, the volume of forest plantations created by selective sowing and planting stock is steadily increasing. In 2006 the share of such plantations was only 11%, now it makes 53%
In Belarus, along with an increase of the total area of the forest fund, there is a steady increase in the areas of maturing, mature and overmature stands.
Timber Harvesting by Types in Belarus, millions of m³

- **2010**: 6.91 (Main felling 3.68, Intermediate felling 4.89, Other felling 3.97)
- **2015**: 8.66 (Main felling 5.83, Intermediate felling 5.83, Other felling 3.97)
- **2017**: 10.96 (Main felling 7.59, Intermediate felling 4.91, Other felling 5.05)
- **2018**: 15.54 (Main felling 8.15, Intermediate felling 4.91, Other felling 4.48)
Tree Trunk Biomass Components

- **Leaves of a tree**: 2-8%
- **Twigs and branches**: 7-15%
- **Trunk**: 83-62%
- **Stumps and roots**: 8-15%
Share Content of Felling Wastes in Belarus, millions of m³

- 2020:
  - Branches, twigs and thin tree-tops: 0.6
  - Leaves of a tree: 0.7
  - Stumps and roots: 2.0

- 2030:
  - Branches, twigs and thin tree-tops: 0.7
  - Leaves of a tree: 1.7
  - Stumps and roots: 2.4

- 2050:
  - Branches, twigs and thin tree-tops: 0.9
  - Leaves of a tree: 1.7
  - Stumps and roots: 2.9
Nutrients in the Soil in the Studied Forest Stands in Belarus, kg/ha

[Bar chart showing nutrient levels (N, P, K, Ca, Mg) for Pine, Spruce, and Birch trees.]
Mineral Nutrients in the Felling Wastes in Belarus, kg/ha
Contribution of Mineral Nutrients Contained in Felling Wastes to the Soil Fertility Improvement in Belarus, %
# Standards for the Use of Felling Wastes in Belarus

<table>
<thead>
<tr>
<th>Fraction of the Felling Waste</th>
<th>Purpose for Using the Felling Waste</th>
<th>Standards for the Use of Felling Waste of the Main Forest-Forming Species, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediate Felling</td>
<td></td>
<td>Pine</td>
</tr>
<tr>
<td>Branches up to 3 cm in diameter</td>
<td>For environmental purposes (improvement of soil fertility and enhancing the biodiversity of forest ecosystems)</td>
<td>100</td>
</tr>
<tr>
<td>Main Felling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branches up to 3 cm in diameter</td>
<td>For environmental purposes (improvement of soil fertility and enhancing the biodiversity of forest ecosystems)</td>
<td>up to 70</td>
</tr>
<tr>
<td>Branches up to 3 cm in diameter</td>
<td>For fuel and energy purposes</td>
<td>up to 30</td>
</tr>
</tbody>
</table>
Felling Wastes Use in Belarus
Element of the Circular Economy in Forest Sector in Belarus (Fuel Wood Chips Production)
Specific Indicators to Compare the Volumes of Timber Harvested during Main Felling and Felling Wastes in Belarus, millions of m³

- **Possible use (tree tops, twigs, branches)**
  - 2020: 26%
  - 2030: 31%
  - 2050: 33%

- **Felling Wastes (stumps, roots, branches, twigs, tree trunks)**
  - 2020: 4.0
  - 2030: 4.8
  - 2050: 5.8

- **Main Felling**
  - 2020: 20.1

The main raw material for the production of wood chips is firewood, lumber wastes. Chips are also made of felling wastes (twigs, branches) which make up about 15% of the total volume.
Currently, there are 5 production units producing wood fuel briquettes and 5 production units producing wood fuel pellets subordinate to the Ministry of Forestry of the Republic of Belarus. These production units have the total set annual capacity about 27 thousand tons.

In 2020 it is planned to launch 6 new production units to produce wood fuel pellets with the total capacity about 150 thousand tons per year.
“Belarusian Forestry Development Project”

Objectives are as follows (implementation period - CY 2015-2021):

- enhance silvicultural management and re/afforestation,
- increase the use of felling wastes,
- improve the public good contribution from forests in targeted forest areas

**Total LOAN and GRANT funds: USD 43,5 mln.**

- **Component 1** – USD 38,6 mln.
  - Improvement of silviculture and the sustainability of forest management (construction of forest nurseries and procurement of machinery for thinning)

- **Component 2** – USD 2,9 mln.
  - Improvement of Forest Fire Prevention, Monitoring, Detection and Suppression (procurement of fire fighting machines and equipment)

- **Component 3** – USD 2 mln.
  - Capacity building for sustainable forest management (consulting services, research work)
Bioenergy Activities, Implemented under the GEF Grant Funding

At present, studies of the nutrient and carbon content in the soil, as well as the state of biodiversity in the areas of various types of felling, where timber is harvested, as well as felling wastes, which have been started earlier in the Republic of Belarus, are ongoing:

The Ways of Felling Wastes Removal:
• **Removal from the felling site** for the use in the energy sector as a fuel or for the chemical and construction industries;
• **Without removal from the felling site** (grinding and scattering of felling wastes in the felling site, collection in heaps and shafts; incineration)
Grinding and scattering of felling wastes in the felling site

Laying on portages with subsequent compaction

Grinding and scattering of felling wastes in the felling site
Collection in heaps and leaving for decay

Collection in shafts and leaving for decay
Identification and creation of a collection of forms of forest woody plants resistant to climatic stress, rare and economically valuable wood species.
Major Project Activities under the GEF Grant Funding Already Implemented:

3.4. Bellesozashchita

«Development of a system of support for decision-making concerning forest management in radioactive contamination areas, prompt informing about the radioactive conditions in the territory of the forest fund»

3.1.4. Belarusian State Technological University

• Consultancy Services to Develop Strategies and Action Plans for the Adaptation of the Belarusian Forestry Sector to Climate Change and to Implement the Principles of “Green Economy”

3.1.7 Institute of Experimental Botany of the Academy of Sciences

• “Monitoring research into changes in the forest fund in response to climate change, human impacts and forest activity and the development of recommendations for the preservation of plants of natural origin and biological diversity during reforestation, afforestation and forest use”
Strategy For Forestry Development in the Republic of Belarus

- Forest Code of the Republic of Belarus
- National Program “Belarusian Forest” until 2020
- Strategic Plan for the Development of the Belarusian Forest Sector until 2030
- National Strategy for Belarusian Social and Economic Development until 2030
Thank You!

Ministry of Forestry of the Republic of Belarus
Myasnikov Str. 39, 220048, Minsk, Republic of Belarus
https://www.mlh.by
https://www.instagram.com/mlh.by/

Belarusian Forestry Development Project
Skryganova Str.6, office 407, 220073, Minsk, Republic of Belarus
https://www.bellesexport.by
E-mail: bfdp@bellesexport.by