Lecture 15. Transport and cargo complexes for forest cargo.

Purpose of the lecture: development of economically feasible proposals for the development and reconstruction of transport hubs based on specialization by types of communications, the use of new technical means, automated control systems, improvement of technological processes;

Keywords: forest management, technological operations, developing modern machines

Types of lectures: Lecture-explanation.

15.1. Principles of forest management

15.2. Transport characteristics of forest cargoes

15.3. Technological complexes for logging operations

15.1. Principles of forest management

Transport and cargo complexes for timber cargo are intended for timber processing at stages from the forest plot where the felling is carried out to the delivery of finished products to the consumer of the timber processing plant. They include a set of buildings, structures, devices, technical means, performing both loading and unloading, transport, storage, and basic technological operations for processing and processing wood. A prerequisite for the selection of equipment for warehouses is its interconnection in a single process stream. Machines and plants placed in the stream must correspond to each other in terms of productivity, technical level, reliability, and the possibility of processing raw materials of certain sizes, breeds and quality.

The complexity of PRTS work in the total complexity of processing materials in the forest industry reaches 55 ... 60%. This fact makes the urgent task of developing modern machines and technologies for the comprehensive mechanization and automation of PRTS operations with timber cargoes.

Two branches of the economy are directly involved in the problems of rational use of forest materials in Russia: forestry and the forest industry. The task of forestry is to obtain the largest yield of wood and non-timber forest products throughout the forest fund. The task of the forest industry is to obtain the greatest profit from each cubic meter of prepared wood. In contrast to forestry, which is conducted on an area of 1,173 million ha, the forest industry is characterized by a limited area of activity (annual harvesting of ripe wood is carried out on an area of less than 0.05% of the forest fund) and production specialization (le-logging, sawmills, pulp and paper, plywood plants).

The logging industry - one of the branches of the forest industry - includes the following main industries:

• logging, consisting of a set of logging operations, logging and logging operations;

• primary rafting (along small rivers) and transit (along large rivers and reservoirs);

• timber transshipment operations on the transfer of forest products from one type of trunk transport to another (from water to rail).

15.2. Transport characteristics of forest cargo

All round timber obtained after logging of whips is divided into business assortments and low-quality wood. Business assortments are prepared in accordance with GOST 9462-88 and GOST 9463-88. By appointment, they are divided into the following groups:

 timber for sawing and planing to produce: saw ¬ materials and blanks (lumber); railway sleepers (sleeper range); rivets of dry barrels and details of boxes (container logs); rivets of wine, beer and jellied barrels (riveting ridge);

 timber for pulp and wood pulp production - balances;

 timber for match production - match ridge;

 timber for veneer production - plywood logs;

 timber for circular use: fastening of underground mine workings (mine stand, mine longitude); masts and vessels; construction; radio masts, piles of technical equipment and elements of bridges, supports of communication lines and power lines (poles of various purposes).

 The main, prevailing assortment in timber enterprises is sawlog. Low-quality wood is intended for use as fuel or raw materials for the production of woodworking and wood-chemical industries (short timber, black billets, wood chips, etc.). Finished products from the processing of assortments in forestry workshops are lumber, blanks, wooden parts, wooden containers (container sets) and round timber (mine stand, balances).

15.3. Technological complexes for logging operations

Currently, machine felling is widely implemented. Feller bunchers (VPM) equipped with manipulators have gained distribution. Caterpillar and wheeled tractors are used as a base for the VPM, the chassis of which are adapted for work in the cutting area. VPM consists of a base tractor and attached technological equipment that cuts the tree, pushes it (removes) it from the stump and delivers the butt part of the tree to the stacker or puts it on the ground. The design of the VPM can be considered on the example of the machine LP-19A.

The feller buncher LP-19A (Fig. 15.3) is designed to cut trees and pack them in the process of clear felling in the flat terrain with a slope of no more than 8 ° and soils ensuring the passage of skidders. The basic base of the machine is an expanded tracked undercarriage 1, the drive of which is carried out from two hydraulic motors that are part of two mechanisms for movement. The running system is supported by a rotary platform 9 with a diesel engine, an operator's cab and an articulated boom.

Questions:

1. What are the tasks and structure of the forest industry?

2. What are the main technological schemes of forest water transport.

3. List the main types of timber.

4. What technical means are used in logging, logging and logging operations?

5. List the types of forest storage

Literature and resources

1. Zhuravlev N.P., Malikov O.B. Transport and cargo complexes: Textbook. allowance. - M .: Route, 2016 .-- 232 p.

2. Boyko N.I., Cherednichenko S.P. Transport and cargo systems and warehouses: textbook / N.I. Boyko, S.P. Cherednichenko. - Rostov n / a .: Phoenix, 2007 .-- 400 p.

3. Transport and cargo systems. Textbook / A.S. Balalaev, I.A. Baburova, A. Yu. Kostenko. - Khabarovsk: Publishing house of FVGUPS, 2015 .-- 101 p.

4. 4. Complex mechanization and automation of loading and unloading operations: Textbook / Ed. Timoshina A.A. and Machulsky I.I.-M .: Route, 2013.- 400 p.

Internet resources:

1. Abdikerimov, G.S. Logistic management of cargo transportation and terminal and warehouse activities [Text]: A textbook for specialists / G.S. Abdikerimov, S.Yu. Eliseev, V.M. Nikolashin, A.S. Sinitsyna, O.B. Malikov // M: FGBOU "Educational-methodical / center for education in railway transport". - 2013 .-- 428 p. https://e.lanbook.com/reader/book/59016/#1

2. Balalaev A.S., Leontiev R.G. Transport and logistics interaction in multimodal transportation: monograph. - M .: FGBOU "Educational-methodical center for education in railway transport", 2012. - 268 p. - http://e.lanbook.com/view/book/58896/page58/

3. Design of loading and unloading devices and warehouses: Method. instructions / compiled by V.A. Bolotin, E.K. Korovyakovsky, N.G. Yankovskaya.- SPb.: FSBEI HPE PGUPS, 2015.- 38 p.

Available online: Additional educational material and Internet sources used to complete the assignments of lectures, seminars, CDS, will be available on your page in the Univer.kaznu system.