

PSAU

POLTAVA STATE AGRARIAN UNIVERSITY



SUBSTANTIATION OF TECHNOLOGY OF UTILIZATION OF TREE BRANCHES



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AIM AND OBJECTIVES OF THE STUDY

The aim of the work:

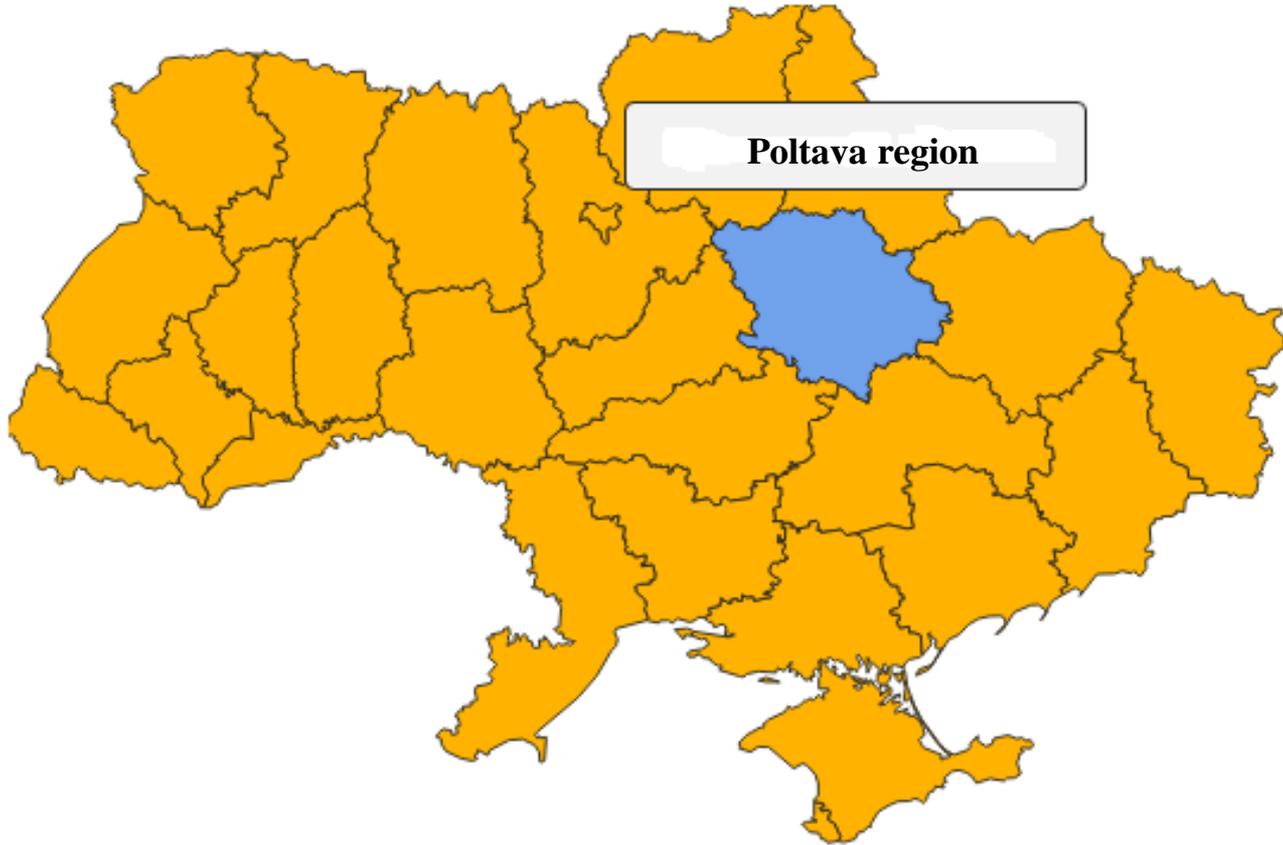
The aim of the work is to improve the non-waste technology for utilization of tree branches and justify the energy-saving mode of operation of mechanical means for their chopping in order to produce fuel material for private farm household.

Tasks:

The main objectives of this work are to justify the technology of non-waste utilization of tree branches and to choose the optimal design parameters for the developed chopper, which is used in the technological process of chopping the tree branches, as well as to analyze the influence of the cutting angle of tree branches when feeding and the size of knife protrusions on the power consumption of the electric motor of household chopper.



BRIEFLY ABOUT POLTAVA REGION

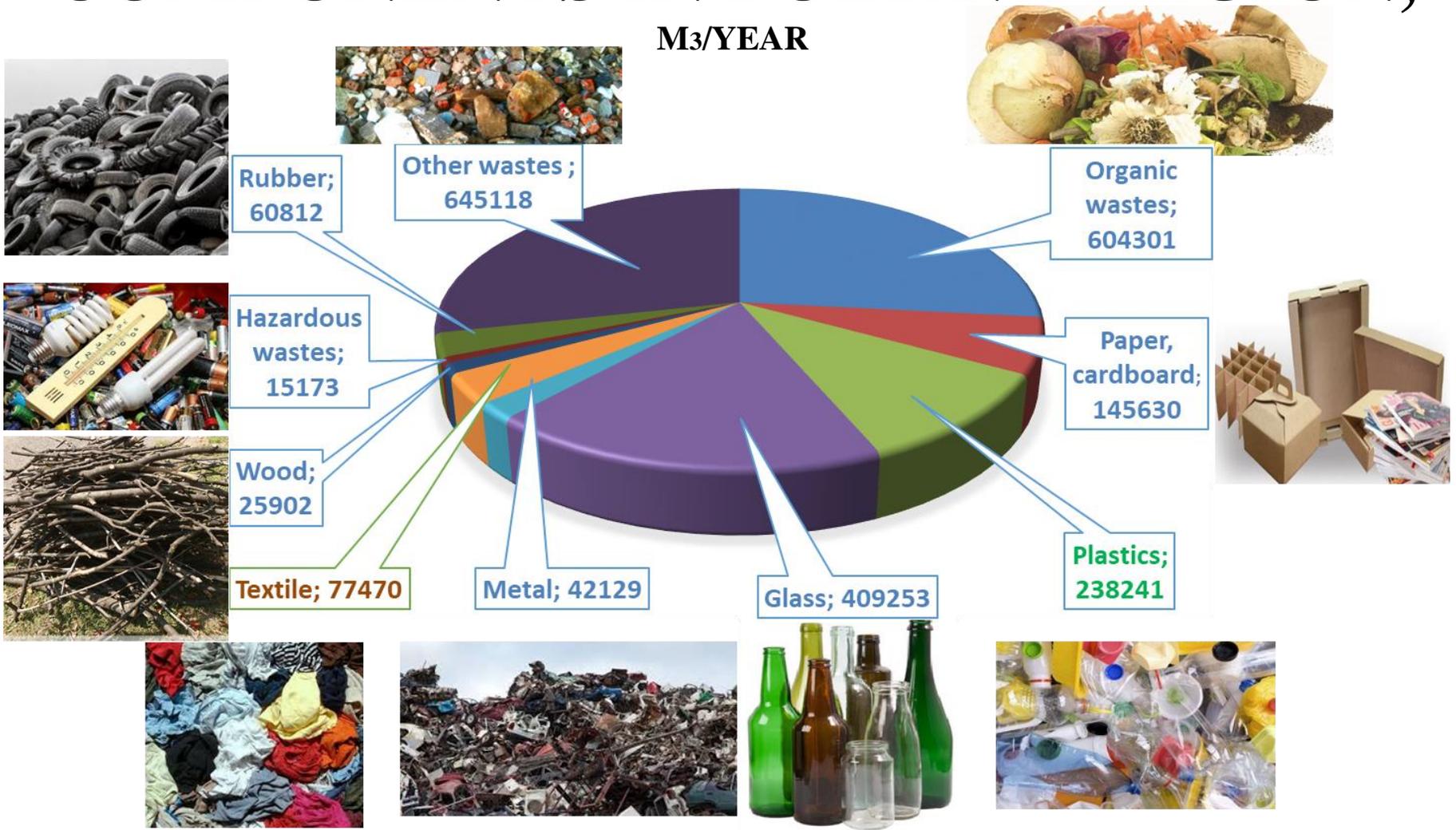


**The territory – 28748 km²;
The population is – 1419 thousand.**



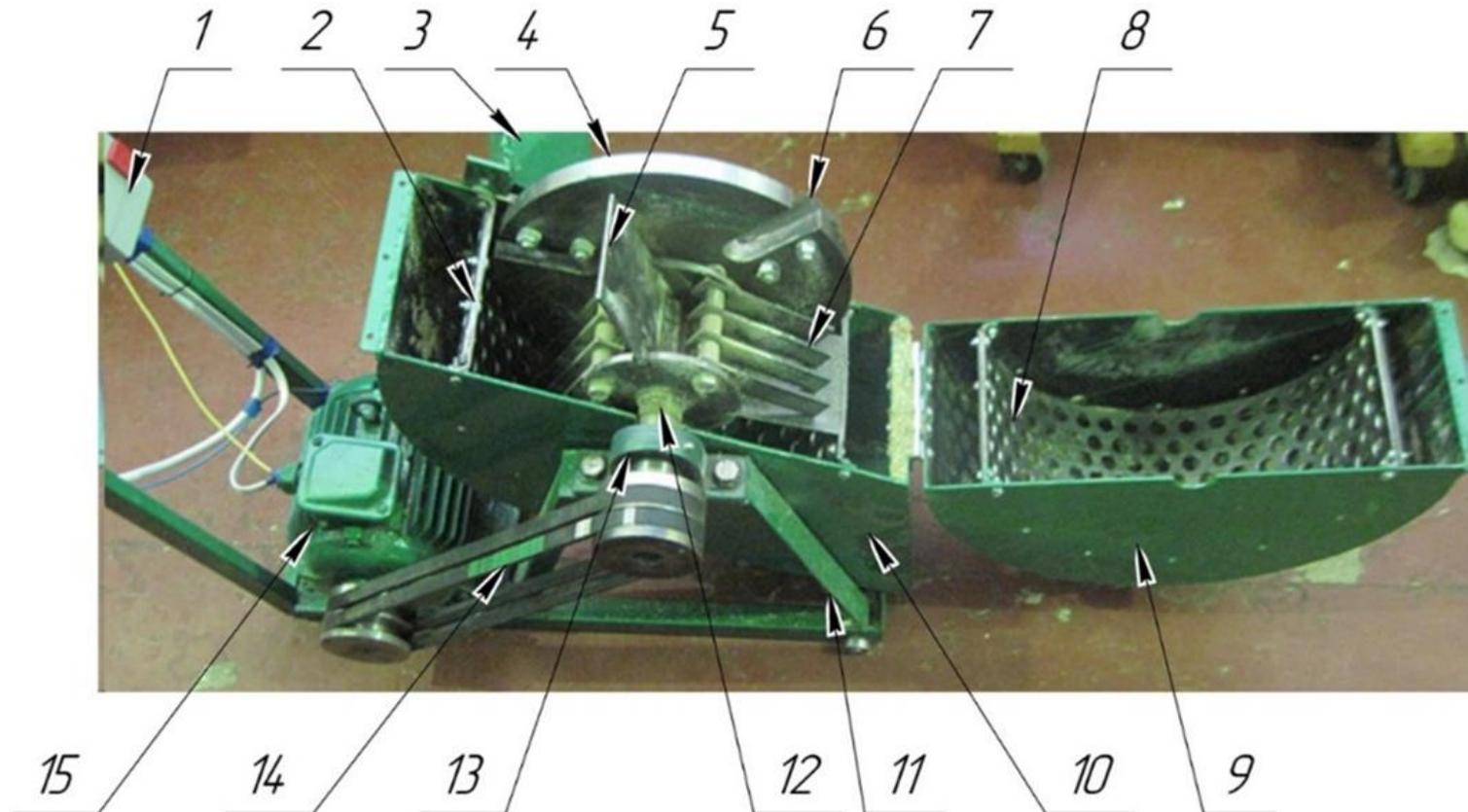
VOLUME OF RESOURCE COMPONENTS IN POLTAVA REGION,

M³/YEAR





RESULTS AND DISCUSSION



General view of the developed chopper of tree branches

1-control panel; 2-fixing strip for screen; 3-charging hopper; 4-disc for fixing the blades; 5-fan blades; 6-cutting blade; 7-grinding hammers; 8-screen; 9-upper housing; 10-lower housing; 11-frame; 12-working shaft; 13-support bearing; 14 - V-belt transmission; 15-electric motor



CONCLUDING REMARKS

Recommended technologies of utilization of tree branches for of the studied region are:

- The results of conducted research will help the population in utilization of tree branches, shrubs and other plant residues.
- They will allow the owners of household plots to plan and organize both periodic seasonal free events, and provide unscheduled paid services ordered by the population or organizations. In addition, they will allow to organize the sale of excess of chopped branches for household needs – space heating or cooking.
- An additional area of expanding the possibilities of using the small-sized mobile chopper is the organization of compost production from plant residues and its implementation for household needs.
- Improvement of tree and shrubs plantations in the village.
- Possibility to transfer equipment for paid rent.
- Taking into account the pronounced seasonality of problems with smoke in the air, the authors of the article propose to organize free services for residents of communities during the period of active shedding of leaves by trees: October-November. Also, during the period of pruning the garden trees and shrubs in late February and March.
- During other periods, services can be provided by order on a paid basis. Also, to organize a place for receiving, storing and composting of plant residues, both from public utilities and from the population of village communities.

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THANK YOU FOR YOUR ATTENTION!



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