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Study of Dimensional and Mass Indicators of Anthroom in Landscape Management

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Abstract. The article analyzes tree branches and their processing, which are formed in the improvement departments of our republic. According to the analysis, in the coming year, the volume of bushy tree branches in our republic will increase by 2-4 times, and there is a need to grind them into different lengths and use them as a product, and it is expected to bring economic benefits. Based on this, it is urgent to develop an energy-saving device that cuts tree branches into different sizes.

Keywords: garden, landscaping department, shrubs, shredding, energy efficiency, shredder.

Introduction

As the main direction of reforms in our republic, the strategy for the development of agriculture for 2020-2030 has been adopted, according to which in the next 10 years it is planned to increase the area of horticulture and vineyards in our country by 2-3 times [1].

Main Part

In particular, within the framework of the Green Spaces national project being implemented in our republic, a plan has been established for planting and caring for 200 million trees and shrubs per year, thereby increasing green spaces in cities from the current 8% to 30% [2].

This means that in the near future the trees should be cut from diseased and dead branches and disposed of as a result. This leads to a significant increase in the number of tree branches in our country [11, 12, 13, 14].

Pruning is the partial or complete removal of excess branches and branches of trees and shrubs. Bushing is carried out in order to give shape to seedlings and trees, as well as to remove diseased, old, broken and extra branches of trees, to rejuvenate old trees (Fig. 1) [4, 15, 16, 17, 18, 19, 20].

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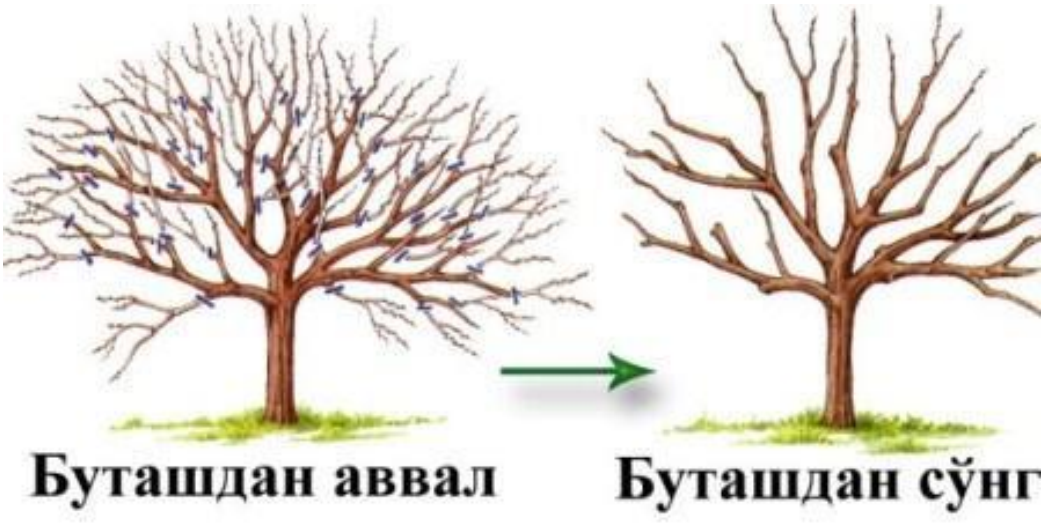

Figure 1. Cutting ways of fruit trees

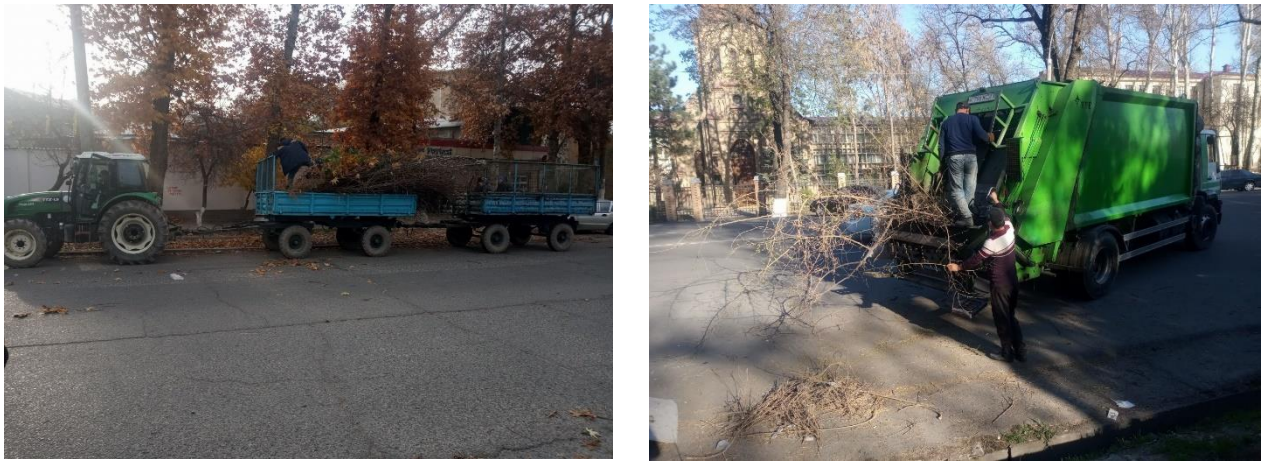

Figure 2. Formed branches on city roads

2-3 times expansion of green spaces, parks, avenues, forests, gardens, vineyards and shrubs in Uzbekistan, as well as 2-4 times increase in the size of branches formed as a result of shaping and pruning when trees grow, transporting them from urban areas and fields, it becomes necessary to use it as a product with additional processing [20].

For crushing antlers, drum, mills, rotary, milling, disk, saw and other types of crushers are used [3].

Improvement departments serve to create, reproduce, restore, maintain, protect and increase the productivity of cities and other settlements, parks, avenues, forests, gardens, vineyards and shrubs.

According to the results of studying the use of bushy branches of trees in our republic, it has been established that the main part of the population is engaged in cutting bushy branches into pieces of different lengths by horticultural departments, gardeners and farms, emphasizing the expediency of using them as a product and the great need for this.

Based on this, one of the important tasks is to develop an energy-saving device that can cut bushy tree branches of the required size, at the level of demand and of the proper quality for use as a product [5, 6, 7, 8].

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The experiments were carried out in the Yashnabad and Mirzo-Ulugbek districts of the city of Tashkent. In the experiments, we studied the size-mass parameters of shrub tree branches in organizations that are part of the district improvement department.

When studying pruning on the example of fruit trees, it was found that up to 30-50 percent of the total number of tree branches are bushy. As measuring instruments for determining the size-mass indicators of tree branches, a rod circle, tape measure and electronic scales were used [9, 10].

From the values of the size-mass parameters of the bushy branches of fruit and ornamental trees, it can be seen that the average length of the branches is 132.0 cm, and the average diameter in the bushy part is 36.6 mm, in the bushy part 23.28 mm. middle part and 6.12 mm at the end part, and their values are shown in the table below.

Table 1. Dimensional and mass indicators of shrubs and branches (on the example of an apple tree)

№	Name of indicators	X_{min}	X_{max}	Value of indicators		
				Middle value, $M_{mis.}$	Middle squared deviation, ± σ	Coefficient of variation, V, %
1.	The length of the branches, cm	26,2	373,4	132,0	42,54	34,99
2.	Diameter of antlers, mm - cutting part - the middle part - third part	 24,9 15,6 4,5	 48,2 31,4 16,8	 36,6 23,28 6,12	 10,74 7,55 3,04	 43,95 42,84 28,52
3.	The width of the branches, cm	6,3	189	86,74	27,32	63,65
4.	The number of sables on one branch, pcs	1	42	9,05	7,19	79,46
5.	Mass of antlers, g	16	2778,4	884,5	68,14	89,26

From the table data, it can also be determined that the length of tree branches was in the range of 26.2-373.4 cm, the average length was 132.0 cm, the standard deviation was 42.54 cm, the coefficient of variation was 34.99%. The diameter of the tree branches becomes thinner from the bushy part to the top, and it is found that the difference between them is 2-6 times.

Conclusion

Based on the foregoing, the issue of developing an energy-efficient machine and device used in the crushing and processing of shrub tree branches in landscaping departments is relevant. The use of such machines and devices leads to a 2-3 times reduction in labor costs and transportation costs for cutting branches, as well as an increase in the frequency of maintenance of hydraulic cylinders in landscaping shops.

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