

## AGGREGATE FOR PLOWING AND SOWING OF BLEND SPECIES AND HELP IN THE FORESTS

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### Abstract

*The paper presents the possibilities of achieving an aggregate provided with working soil loosening with or without inverting the furrow while carrying out the sowing of seeds of certain blend species and help (ash, maple, linden, maple, tartaric maple, hawthorn, dogwood, etc.) in the gaps occurring between trees, as a result of illness, planned or unplanned cutting, to combat deforestation and soil erosion in hilly or mountainous areas as a result of massive and uncontrolled deforestation. The aggregate is fitted with one or two rolling wheels with independent adjustment possibilities, depending on the position and the slope of the field which ensures the aggregate's position during the work and driving through a bevel gear mechanism of the distribution device. The distribution device has the ability to set the distance between nests and the number of seeds in the nest.*

**Key words:** seeders, seeds, gully, nursery, forestry species.

### INTRODUCTION

When using sowing for the species forestry enterprises in nurseries decreases the volume of force of manual labor, increases productivity and creates possibility of making motorized and the other the maintenance work [3].

Also, it is held constant depth of sowing and uniform spacing between rows and even the distance between the seeds at a time. Seeders for the work proposed, uses components that can be found on some machines the sowing small seeds carried out at national and international level [4, 5].

Variation in amount of seed per meter of ditch is ensured by the movement on the bezel of the transport wheels that transmit movement and to the timing. It was intended to continue agitation of the material out of the box in order to supply the distribution of the permanent [1, 2].

### MATERIAL AND METHOD

Studies carried out to implement a seeders which achieve can be used in the creation of specific crops in forestry nurseries followed by realization began in the autumn of 2009 at the nursery forestry Valley's Bogdan.

To this end have been studied part of existing seeders nationally and internationally and their possibilities to adapt to the establishment of forestry nurseries. Also have been studied and some characteristics of seed of certain species, forestry machinery, namely: *Picea Abies alba*, excelsa (spruce, FIR, red molift), *Larix decidua* (larch tree, larch, Lily), *Pinus sylvestris* (*Pine Sylvester*), in the forestry nursery crops of technique, outlined below:

**Abies alba**, has large seeds of 7-9 mm long, triangles, having a wide triangles whole wing, which breaking irregularly. As you are doing autumn, runs ploughing soil at 20-25 cm deep, levelled and grind well soil in layers late 1.2 m width, and the seed is simple, like in the trenches at 15 cm equally spaced from each

other, at a depth of 2.5 cm. Standard seed is 12 g m de gully, when seed is 50%, or 20-25 g m when germination is 25-30%. In gully seeds are covered with forest humus.

*Picea excelsa*, spruce multiplies easy from seed, but can be used and multiplying by cuttings. It is grown in nurseries of the mountain, but also in the lower altitudes of nurseries and even plain. It is recommended that the sowing to layer, in the trenches simple late 1-2 cm to 15 cm equally spaced, sowing grouped in rows, with two simple trenches, equally spaced between them to 4 cm and distance between groups of trenches is 20 cm. Rule of seed which is used is 12 g per metre of gully, depth sowing seeds is 2 cm.

*Larix decidua* [1] nurseries for culture laricelui choose areas altitudinal 550-600 m and above, with soils ground by Waterside, very fertile. Before sowing, seed is soaked in water for 12-14 hours. To avoid sticking during sowing seed between them or of the walls of the seed is proposed to achieve a surface drying. To avoid sticking during sowing seed between them or of the walls of the seed is proposed to achieve a surface drying. The era of sowing is the optimum of the second half of May. The era of sowing is the optimum of the second half of May.

Rule of the seed used to meter is 14 g seeds and sowing depth of 1-1.5 cm. Scheme of sowing in narrow trenches is with the distance between the trenches of 20-25 cm. Sowing cover with a layer of humus, those is indicated as the sowing to make blended seed plus humus.

*Pinus silvestris*, the sowing seeds in nurseries, working technique is akin to the spruce River. Seeds are alike in narrow trenches, equally spaced at 20 cm, depth of sowing being 1.5-2 cm. Rule of seed used is 2 g per metre of gully. As a result of the characteristics of some species has passed at forestry study on depth of sowing, uniformity of sowing, on the distance between rows and between seeds per row.

Documenting and began studies at the Faculty of Agriculture, Craiova, together with specialists from the INMA of Bucharest, Bucharest Polytechnic University.

Studies in order to achieve sowing took into consideration the following:

- dimensions of the beam of forestry nurseries, length, width, thickness of the frame;
- possibilities of equipment of sowing with seeds with volume variable depending on the species;
- possibilities of tuned very small 1.5-2.5 cm;
- possibilities for adjusting the flow of seed 2-4 g/m gully;
- achievement of transmissions through the chain to ensure that a large number of reports of transmission;
- possibilities to adjust the distance between rows, minimum 5 cm or multiples of 5 cm.

## RESULTS AND DISCUSSIONS

Establishment of forestry nurseries begins with the work of ploughing the soil to a depth of 20-25 cm, executed with the known agricultural aggregate in most cases with reversible ploughs followed by shredding soil, cannot and his depression.

In figure 1, shows a frame from the nursery with a length of 12 m, width 1 m, 5 cm thick frame. Bed preparation, soil and germinated raised depression can be achieved before mounting frames of wood, using agricultural tools, machines and raised, levelled soil. Mounting frames as seen in the figure is carried out manually [3].

In figure 2, we see the front of the sowing machine, that machine distribution, transport wheels, frame and chain transmission by Gall through the 24 gear ratios. Lever we indicate that the movement bezel and energizing sowing on device distribution is done through human action manually.

The outer seed with variable volume caused by changing the height of the side parts thereof. Mechanical Stirrer sat down at the bottom of the box helps to supply continuous distribution apparatus, and in the bottom frame is observed for catching support with shutters.



a.



b.

Fig. 1. Frames ready for sowing (a, b)

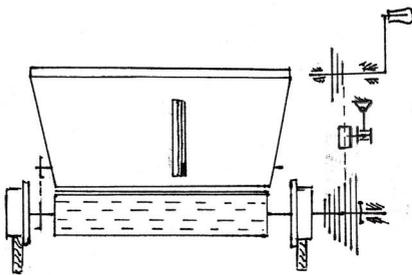


Fig. 2. Overview of the sowing machine

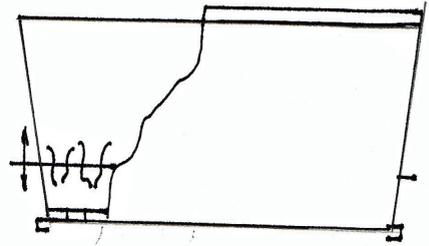


Fig. 3. Seed box

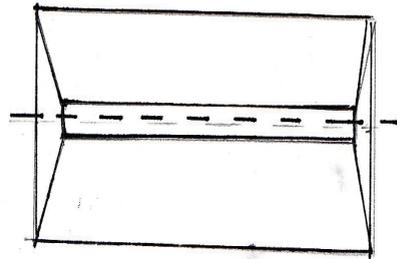


Fig. 4. Seed box, top view

Support with shutters, with bandwidth 45 mm, each fastened to adjust the distance between rows and opening in order to adjust the standard of seeds per metre of gully.



Fig. 5. With Support for adjusting the flow shutters seeds and distance between rows

The framework allows replacement of wheels sowing of transport depending on depth of sowing and the two active elements and distribution device roller occupies by their length 1.2 m of the total of 1. m in side wooden frame, the distribution of type drum with the honeycomb in front and roller with sieve to cover the seed and soil surface compaction rear.

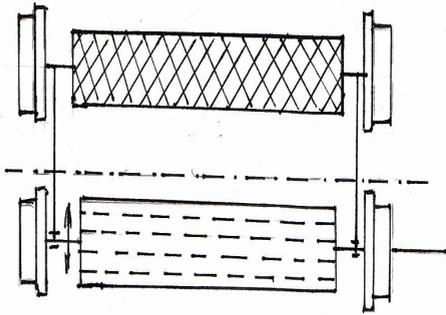


Fig. 6. Sowing machine trolley

## CONCLUSIONS

Sowing achieved can only be used on small areas with small widths due to the volume small reduction ratio of the seeds.

How fitting sowing machine can ensure the generation of very small depths of sowing. Adjustment rule of seeds is done quickly, easily and manual work, as well as its movement. Exploitation does not require additional preparation sowing for service personnel.

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AGRO-FORESTRY  
AND  
CLIMATE CHANGES

