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PROSPECTS OF SEABUCKTHORN MECHANICAL HARVESTING IN RUSSIA



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What is the main way of seabuckthorn harvesting in Russia



Hand
picking

And
uncontrolled
branch cutting
of wild bushes

WHAT ABOUT HARVEST OF WILD SEABUCKTHORN IN RUSSIA?



**2500-3000
TONS**



WHAT ABOUT HARVEST OF INDUSTRIAL SBT PLANTATIONS IN RUSSIA?



**2500-3000
TONS**



Estimated Ways of Mechanical Harvesting



- **DIRECT COMBINE HARVESTING**
- **SELECTIVE BRANCH CUTTING FOLLOWED BY SHAKING**
- **TOTAL BRANCH CUTTING FOLLOWED BY SHAKING**
- **VACUUM PICKING**
- **FREEZING BUSHES ON THE FIELD AND SHAKING**

DIRECT COMBINE HARVESTING



DIRECT COMBINE HARVESTING



Pros and Cons

**20-30 times
faster compare
to hand picking**



DIRECT COMBINE HARVESTING



Pros and Cons

**Up to 80% of
berries are
collected**

**(few varieties
in proper age)**

DIRECT COMBINE HARVESTING



Pros and Cons

Every year
harvesting is
possible
(theoretically)

DIRECT COMBINE HARVESTING



Pros and Cons

- Low quality of harvesting
- Severe damages to bark
- Only few varieties in proper age are suitable for harvesting





TOTAL BRANCH CUTTING



After cutting



One year after cutting

TOTAL BRANCH CUTTING



Second year after cutting



TOTAL BRANCH CUTTING





EXTRA RAW MATERIAL AFTER TOTAL BRANCH CUTTING

Indicator	Wood part				Leaves part			
	After harvesting		Dry		After harvesting		Dry	
	kg/bush	t/ha	kg/bush	t/ha	kg/bush	t/ha	kg/bush	t/ha
Mean	1,3	3,3	0,6	1,5	0,4	0,9	0,2	0,4
Min	0,8	2,0	0,4	1,0	0,3	0,7	0,1	0,3
Max	2,0	5,0	0,8	2,0	0,5	1,1	0,2	0,5

Average berries productivity is 0.6-1.2 kg per plant

TOTAL BRANCH CUTTING

Our Task:

Selection within huge collection of
sbt varieties the samples
distinguished for high berries
productivity of leader shoots (LS)



TOTAL BRANCH CUTTING



Is about 10 varieties has been selected

- Significant buds density on leader shoots
- High ratio of berries weight compare to wood part of branches

The following parameters of leader shoots have been estimated:

- Amount and length of LS branching
- Buds per 1 cm
- Berries amount per bud
- Berries weight (100 berries weight)
- Berries weight per 1 cm of LS
- Weight of LS wood part
- Weight of berries per LS

TOTAL BRANCH CUTTING



Evaluated parameters of selected sht varieties, 2020

Variety	LS branching		Berries per bud, psc	Buds per 1 cm, pcs	Weight of 100 berries, g
	amount, pcs	length, cm			
87-93-4	2,5	6.7	4.7	0.9	58.0
32-01-1	0.3	1.3	4.7	0.8	66.2
126-02-1	0.7	5.3	4.1	1.0	57.3
4-93-11	1.3	9.0	3.8	0.9	55.5
Afina	1.0	5.7	3.0	0.9	92.4
Dzhemovaya	0,0	0,0	2.9	0.9	76.0
Ognivo	0.3	1.3	2.6	0.7	79.1
203-00-4	4.0	7.3	2.3	0.8	71.2
404-93-1	5.0	9.9	2.3	0.8	78.6
149-00-2	5.0	7.9	1.8	0.7	85.8

TOTAL BRANCH CUTTING



Wood and berries productivity of leader shoots, 2020

Variety	LS length, cm	LS weight			Berries weight per 1 cm, g	Berries- wood ratio
		Berries part, g	Wood part, g	Total, g		
87-93-4	108.5	271.3	107.7	379.0	2.5	71/29
32-01-1	90.9	218.2	114.7	332.9	2.4	66/34
126-02-1	70.7	162.8	101.0	263.8	2.3	62/38
4-93-11	111.5	200.7	123.0	323.7	1.8	62/38
Afina	89.2	231.8	304.0	535.8	2.6	43/57
Dzhemovaya	71.6	143.2	99.7	242.9	2.0	59/41
Ognivo	88.5	141.7	201.0	342.7	1.6	41/59
203-00-4	110.5	154.7	105.7	260.4	1.4	59/41
404-93-1	138.9	194.4	201.3	395.7	1.4	49/51
149-00-2	116.8	128.5	192.7	321.2	1.1	40/60

TOTAL BRANCH CUTTING



Basic requirements to varieties for total branch cutting technology:

- Vigorous LS growth
- High amount of buds per 1 cm of LS length
- High berries-wood ratio

SURVIVE AFTER SEVERAL TIMES OF CUTTING

AFINA





87-93-4

CONCLUSIONS



- DIRECT COMBINE HARVESTING IN RUSSIA WILL NOT BE IMPLEMENTED
- SELECTIVE BRANCH CUTTING IS PROMISING APPROACH BUT NOT UNDER INVESTIGATION TILL NOW
- TOTAL BRANCH CUTTING IS POSSIBLE IN NEAREST 5 YEAR

TILL THEN ONLY HAND PICKING IS RECOMMENDED



THANK YOU

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