Ulaanbaatar2024

# SEA BUCTHORN MEADOW-GARDEN, TECHNOLOGICAL AND ECONOMIC ASPECTS.

*SERGEY OLEICHENKO*

*- KAZAKH NATIONAL AGRARIAN RESEARCH UNIVERSITY.*

OLEICHENKO@MAIL.RU

# BIOCHEMICAL COMPOSITION OF SEA BUCKTHORN FRUITS

| Varieties | Dry matter (%) | Shugar-(%) | Acid-(%) | Vit C-(%) | Caroten e-мг% | Pectin-(%) |
|---|---|---|---|---|---|---|
| 1.Elizabeph (St) | 9 | 3.6 | 1,8 | 103 | 2,7 | 0,23 |
| 2.Aphena | 9,5 | 2,9 | 1,7 | 107 | 3,1 | 0,15 |
| 3. Avgustine | 9,3 | 3,3 | 1,6 | 105 | 2,9 | 0,22 |
| 4.Etna | 10,1 | 3,5 | 1,5 | 112 | 3,6 | 0,25 |

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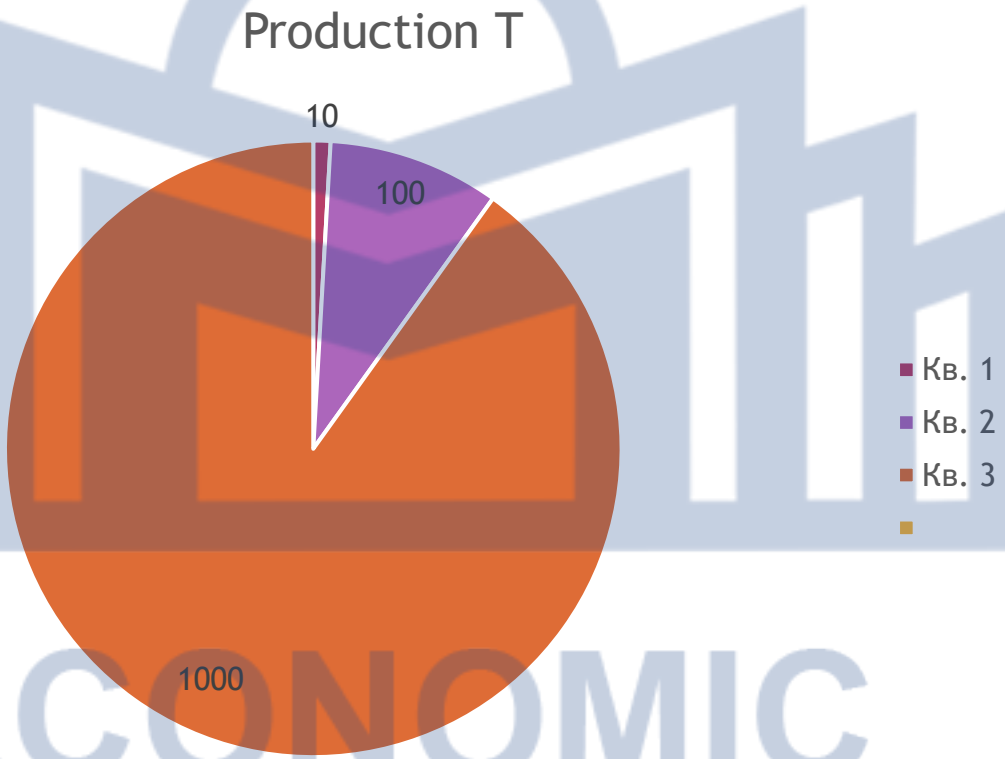
# SEA BUCKTHORN PRODUCTION IN KAZAKHSTAN - 2020; 2025; 2030 YEARS

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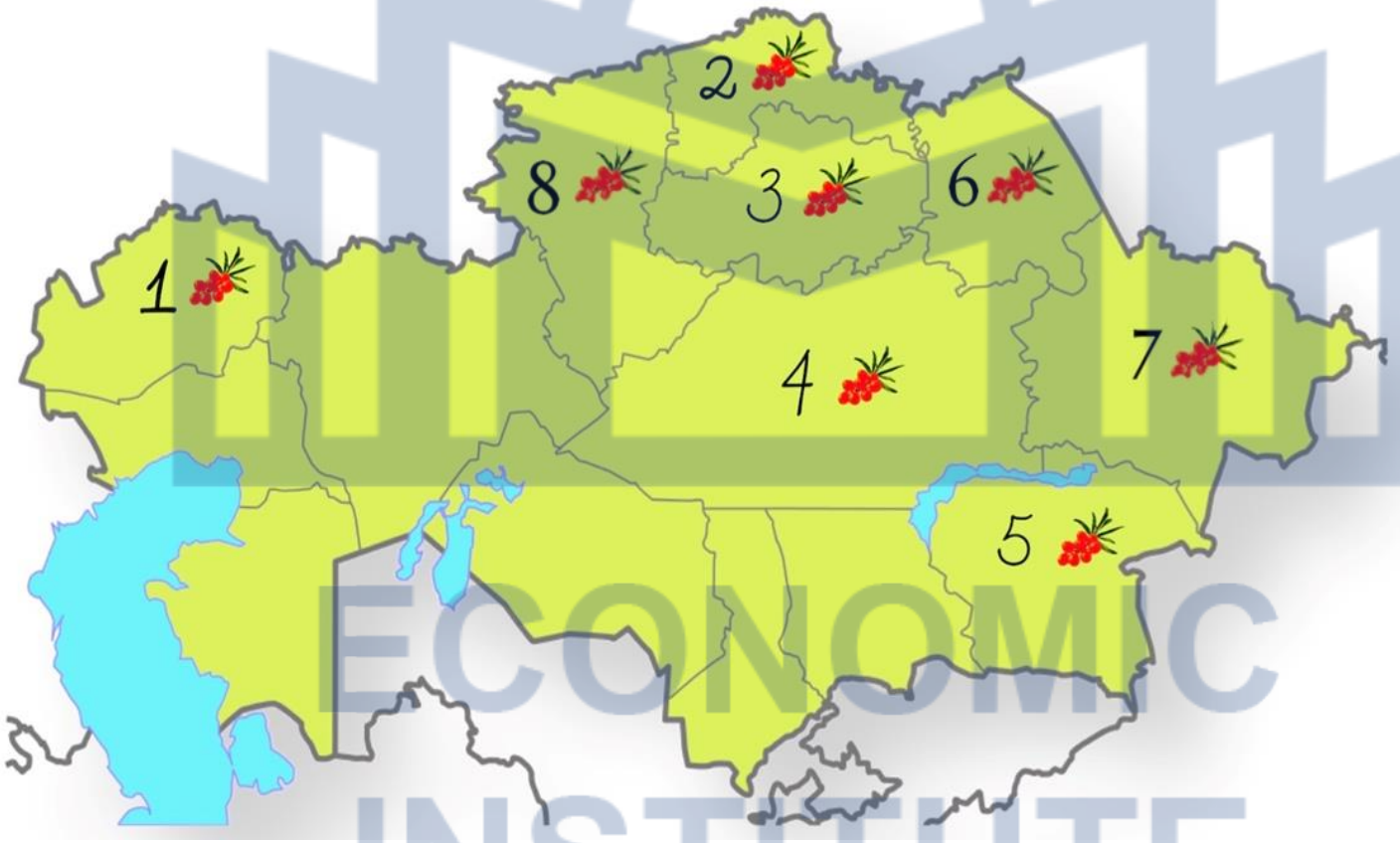
# PROMISING REGIONS OF KAZAKHSTAN FOR GROWING SEA BUCKTHORN.

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# MAP OF KAZAKHSTAN


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# THE TRADITIONAL METHOD OF GROWING SEA BUCKTHORN

## SCHEME OF PLANTING 4 X 2 M, 1250 PLANTS/HA

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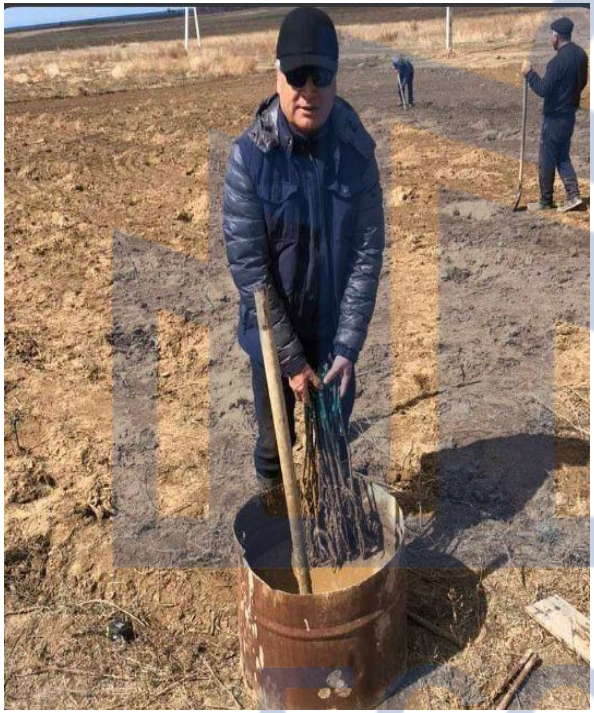
# VERY IMPORTANT STEP - PRE-PLANTING LIQUID MIXTURE DIPPING ROOTS MASH(ZEBA + HUMIC + SEEDSPOR)



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# VERY IMPORTANT STEP - PRE-PLANTING LIQUID MIXTURE DIPPING ROOTS MASH

- The composition of the mash:
  - 1. Claim
  - 2. Seedspor (micorrhiza, trichoderma, bacteria- bacillus Zn +_Fe)
  - 3. Humic
  - 4. Hidrogel

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# SEA BUCKTHORN PLANTATION IN THE YEAR OF PLANTING IN THE SOUTH-EAST OF KAZAKHSTAN

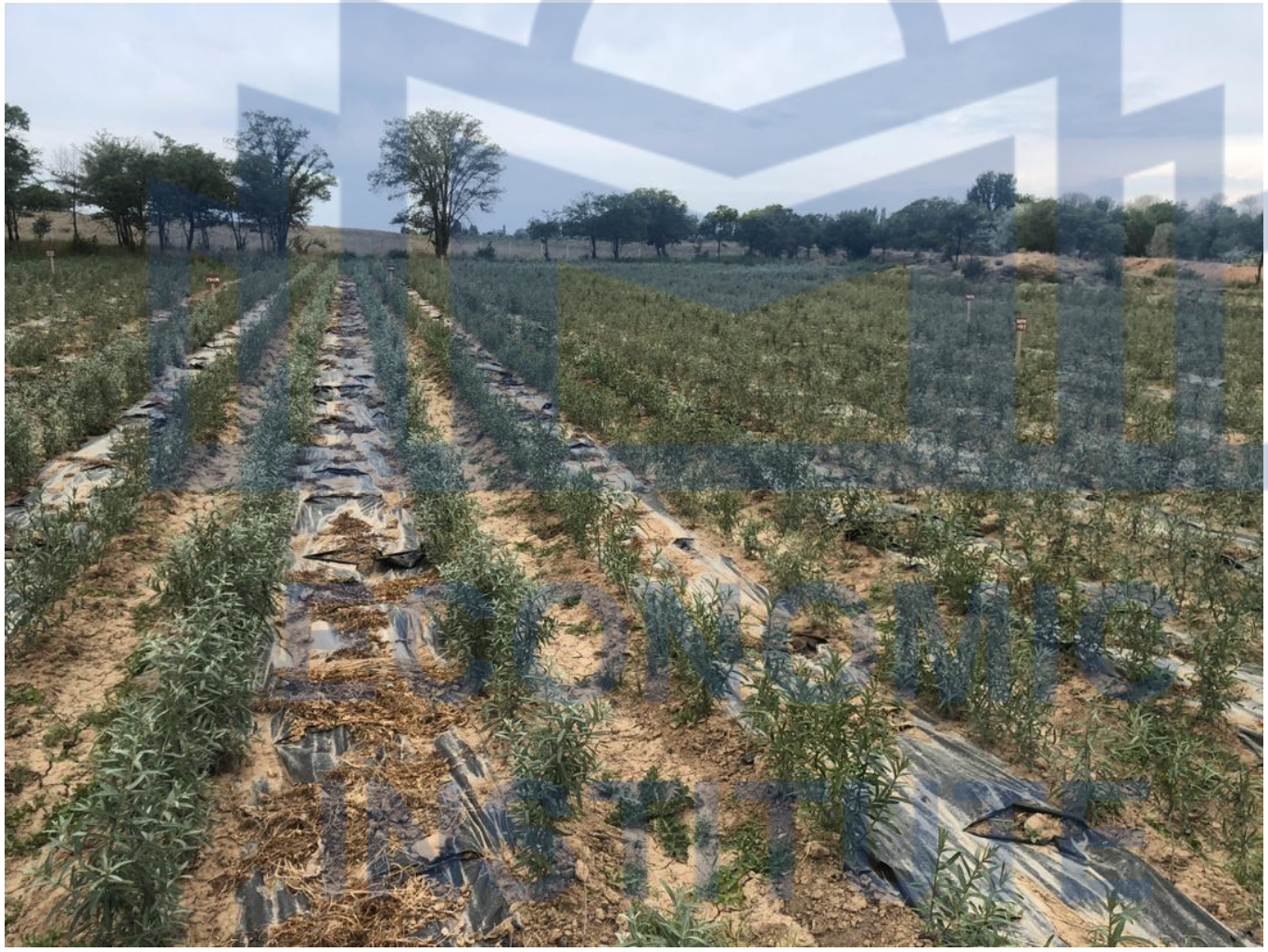
# ONE AND TWO-YEAR-OLD POLLINATOR PLANTS IN THE SEA BUCKTHORN MEADOW GARDEN

# FLOWERING OF MALE (A) AND FEMALE (B) VARIETIES OF SEA BUCKTHORN

A- BUMP

B- HOOF

# SEA BUCKTHORN MEADOW-GARDEN PLANTATION IN THE YEAR OF PLANTING (KH OKENOV 2019)



# NURSERY-SEMIRECHIE, ALMATY.

2022

2023

# PLANTATION OF MEADOW-GARDEN-SEA BUCKTHORN FOR 2 YEARS AFTER PLANTING

# SEA BUCKTHORN FRUITING IN THE 3RD YEAR AFTER PLANTING

# CUT BRANCHES OF SEA BUCKTHORN WITH HARVEST

# BRANCHES OF WILD AND CULTIVATED SEA BUCKTHORN

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# PRODUCTIVITY OF SEA BUCKTHORN VARIETIES IN THE OKENOV FARM, KYRGYZSTAN (2022)

| Varieties | Number of fruits (pcs/plant) | Average fruit weight (g) | Productivity | |
|---|---|---|---|---|
| | | | g/ plant | t/ha |
| 1. Elizabeth (K) | 1066 | 0,8 | 852,8 | 32,1 |
| 2. Athena | 1215 | 0,9 | 1093,5 | 41,1 |
| 3.Augustine | 1020 | 1 | 1020 | 37,7 |
| 4. Etna | 957 | 0,8 | 765,6 | 28,8 |
| **NS** indicat Significant difference at P<0,05 | | | | 2,7 |

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# THE RATIO OF PRODUCTIVITY AND VEGETATIVE PARTS OF SEA BUCKTHORN PLANTS.

| Variants/ cultivars | Yield kg/plant. | S-leaves m2/plant | Yield kg/s leaves plant | Leaf mass - m (water- %) | | Mass of wood - mw (water- %) | |
|---|---|---|---|---|---|---|---|
| | | | | Dry g/plant | Yield кg/m | Dry g/plant | Yield кg/mw |
| 1.Elizabeth (K) | 0,85 | 0,18 | 4,7 | 252-59 | 3,4 | 208-47 | 4 |
| 2. Athena | 1,09 | 0,21 | 5,1 | 294-58 | 3,7 | 221-44 | 4,9 |
| 3.Augustine | 1,02 | 0,18 | 5,7 | 251-60 | 4 | 205-45 | 5 |
| 4. Etna | 0,77 | 0.17 | 4,5 | 237-61 | 3,2 | 198-45 | 3,9 |

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# PRODUCTIVITY OF SEA BUCKTHORN VARIETIES IN THE NURSERY-SEMIRECHIE FARM, ALMATY IN THE 2-ND YEAR AFTER PLANTING.

| № | Varieties | Number of fruits (pcs/plant) | Average fruit weight (g) | Productivity | |
|---|---|---|---|---|---|
| | | | | g/ plant | t/ha |
| 1 | 1. Elizabeth (K) | - | - | - | - |
| 2 | Altai | 56,8 | 0,56 | 31,8 | 1,14 |
| 3 | **Augustine** | 578,6 | 1,15 | 665,4 | 24 |
| 4 | Zlata | - | -- | -- | - |
| 5 | **Inia** | 548,2 | 0,65 | 356,3 | 12,8 |
| 6 | Klaudia | 40,8 | 0,71 | 29 | 1,04 |
| 7 | Etna | 65,6 | 0,73 | 47,9 | 1,7 |
| | | | | | 3,5 |

**NS** indicat Significant difference at P<0,05

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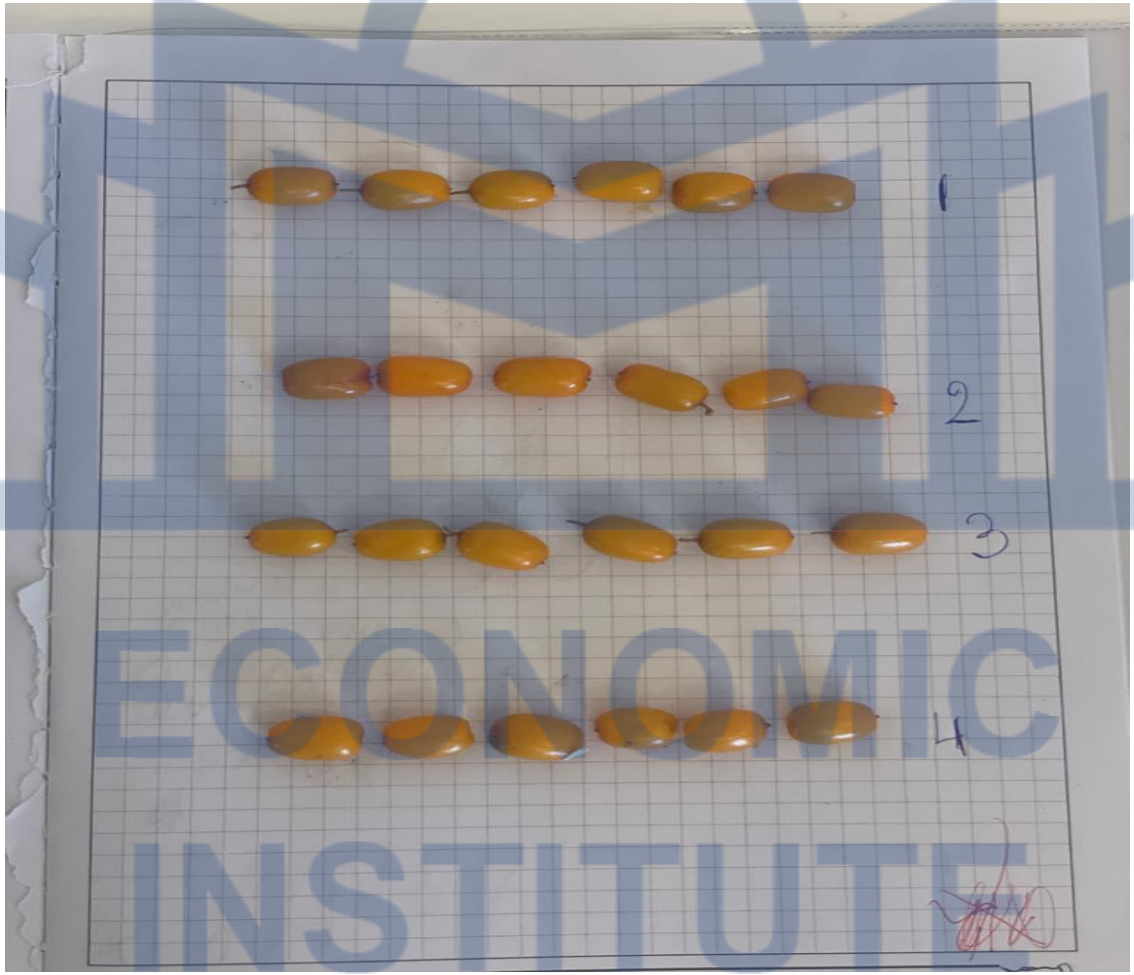
# SEA BUCKTHORN REGROW AFTER CUTTING BRANCHES WITH A HARVEST AT THE AGE OF FREE

1999

2022

# SEA BUCKTHORN FRUITS: 1. ELIZABETH, 2. ATHENA, 3.AVGUSTINE, 4. ETNA

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# THE MAIN DISEASES AND PESTS OF SEA BUCKTHORN

- **Verticillium - Fusarium**

**Dried-Shrink** desease. Cause plant to vilt

**STEM CANKER-** Affected steam, shoots, twigs, leaves and fruits. Elevated temperatures for a long time in autumn may cause heavy infections.

**Endomycosis-** of fruits become flabby, soft and discoloredbut is not con-sidered to cause significant damage. Botrytis cinerea,
Capnodium sp., Monilia altaica, and Penicillium hordei have been associated with these damages

**Sea bucthorn fly-** Can damage up to 90% of the crop. Damaged fruits shrivel, darken and dry on the branches. The fly hibernates in the soil and damages the fruits at the beginning of their growth. Gives one generation

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# FOLIAR APPLICATION AND PEST AND DISEASE CONTROL

| № | Timing | Drugs |
|---|---|---|
| 1 | Bud break - the beginning of flowering | ***Kosaide( 2,5кg/ha)***<br>***Topsin- (1,2 kg/ha)***<br>***Vertimek (1 l/ha)***<br>***Generate-(1 l/ha)***<br>***Hanseguard ( 2 l/ha)*** |
| 2 | Falling ovaries | ***Prevecur (1,5 l/ha)***<br>***Engio (0,3 l/ha)***<br>***Aminopull Turbo(1kg/ha)*** |
| 3 | Formation and growth of fruits | Engio- ( 0,3 l/ha)<br>Softgard- (1,5 **l/ha)**<br>**Alga 600-1,5 kg/ha)**<br>Calitek-(3 l/ha)<br>***Generate-(1 l/ha)*** |

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| | | |
|---|---|---|
| 4 | **Before maturation** | ***Final K ( 3 l/ha)***<br>**Softgard- (1,5 l/ha)**<br>**Alga600- (1,5 l/ha)**<br>***Kalitec( 3 l/ha)*** |
| 5 | **After harvest** | Gemastim ( 3 l/ha)<br>Ekoshild (1 l/ha)<br>Curamin (1,2 l/ha)<br>Phoskraft (1,5 l/ha)<br>***Generate-(1 l/ha)*** |

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# ADJUVANT EFFECT ON LEAVES


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# MICROCLONAL PROPAGATION OF SEA BUCKTHORN IN THE KAZAKH NARU

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# GROWING SEEDLINGS OF SEA BUCKTHORN FROM WOOD CUTTINGS IN OKENOV, KYRGYZSTAN.


# TABLE. COMPARATIVE AGRO-ECONOMIC ASSESSMENT OF THREE TECHNOLOGIES FOR GROWING SEA BUCKTHORN.

| Indicators | Meadow-garden | Traditional | Traditional-intensive | Harvesting in wild plantations |
|---|---|---|---|---|
| Productivity for 5 years - t / ha | 85 | 20 | 30 | 2,5 |
| Costs thousand $/ha | 57,2 | 25 | 32,2 | 4,3 |
| Cost price $/kg | 0,67 | 1,25 | 1,07 | 1,74 |
| Fruit cost - thousand $/ha | 221,7 | 52,2 | 78,3 | 5,4 |
| Profit thousand $/ha | 164,6 | 27,2 | 46,1 | 1,1 |

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# TABLE. COST STRUCTURE FOR THREE TECHNOLOGIES.

| Indicators | Meadow-garden | Traditional | Traditional-intensive | Harvesting in wild plantations |
|---|---|---|---|---|
| Cost- thousand $/ha (100%) | 46,7 | 21,5 | 17,6 | 4,3 |
| Planting and cultivation - % | 83,9 | 56,5 | 49,3 | - |
| Harvesting- % | 16,1 | 43,5 | 50,7 | 100 |

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# Thank You

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