

# Development of planting technology using the Nursery Block

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## Goal Introduction of nursery block seedlings to Uzbekistan with scientific evidence

How do we introduce the Nursery Block Seedling technique?

## Background

### Needs 1 Nukus

- ① New greening methods expected in Sandy desert soil
- ② Water-saving planting in Alluvial meadow soil

### Delta zone :

Alluvial meadow soil Sandy desert soil

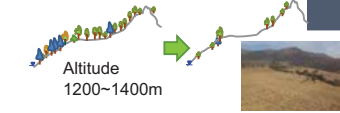


Around Delta : Sandy desert soil

### Needs 2 Angren Mountains

- ① Restored forests function as disaster prevention in Seirozem
- ② Expectations for new planting methods

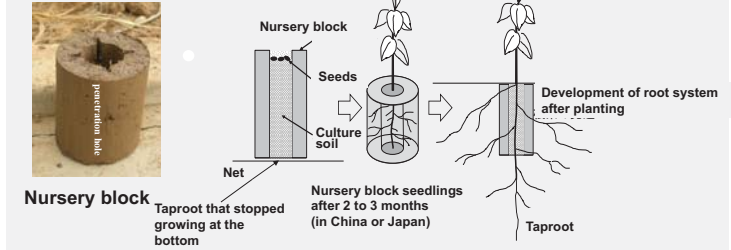
Around 1900 (before Soviet Union rule)



Surrounding area : Planting

■ NB (Nursery block : soil block which consists of soil, compost and clay)

■ In the NB, the plant roots extend deep into the ground.



## Methods of field experiment

■ Site: Nukus and Angren

■ Seedling production

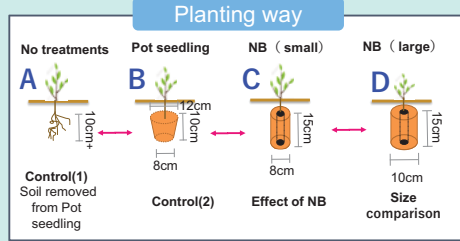
- Seedling period: Nukus 7-15 month (transplanted Oct 2018- May 2019)
- Angren 8 month (transplanted Oct 2019)



■ Design of field experiment

■ 4 planting ways (Nukus), 3 ways (Angren without A)

■ Monitoring : Increased survival and growth, Soil moisture



Species

■ [Nukus]  
• *Elaeagnus angustifolia*  
• *E. ang. sub.*

■ [Angren]  
• *Fraxinus*

Soil Types

2 types

Soil Improvement

4 ways

## Results

■ Root structure after planting

- Sandy desert soil : alive = root up to 60cm long
- Individuals with short root systems died out.



Died Individuals  
root to depth less than 35 cm

Alive Individual  
Extends to depth 60 cm  
Nov. 2019

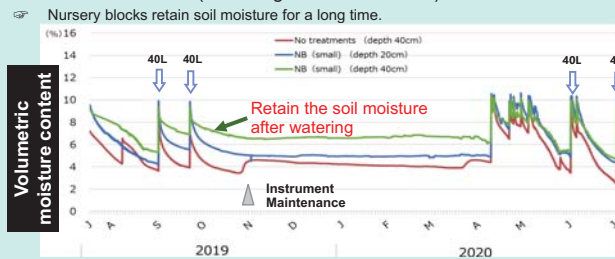
### Nukus

Alluvial meadow soil: many NB individuals still alive  
Root systems to be investigated in 2021

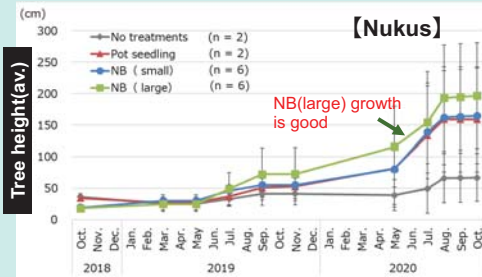
### Angren

Survey in 2021

■ Field condition (Watering and Soil moisture)

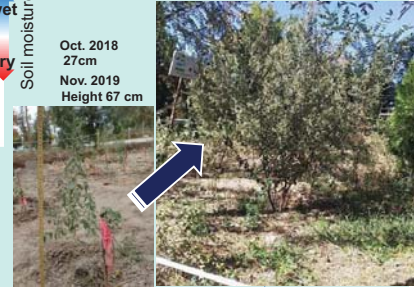


■ Growth



Two years after planting,  
tree height 270cm

Sep. 2020



Oct. 2018  
27cm  
Nov. 2019  
Height 67 cm

Watering times after planting  
: only 5 times (5-40L each)

More than 20 times/year in common

Positive effect of NB on growth

## Possibility of implementation of Nursery Block for arid and degraded lands in

■ Cost comparison

	1~2 years	3~5 years	
Conventional method	① Sowing	② Nursery (initial stage)	Planting
		③ Nursery (middle to late stage)	
		\$ 6 USD/tree	\$ 11 USD/tree
		Spring, re-potting	Watering frequency after planting : 1st year : 12 times/y 2nd-4th year : 8~10 times/y
Nursery Block method	① Sowing	② Nursery Planting	
			\$ 5 USD/tree
		\$ 1.3 USD/tree	Watering frequency after planting : 1st year : 0-3 times/y

■ Conclusion

- Survive with minimal irrigation
- Cost effective

■ Next step

- Monitoring in 2021 with new method
- License application in progress in UZB

NB Manufacturing Machine



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