



Seed orchards in Estonia: past, present and future

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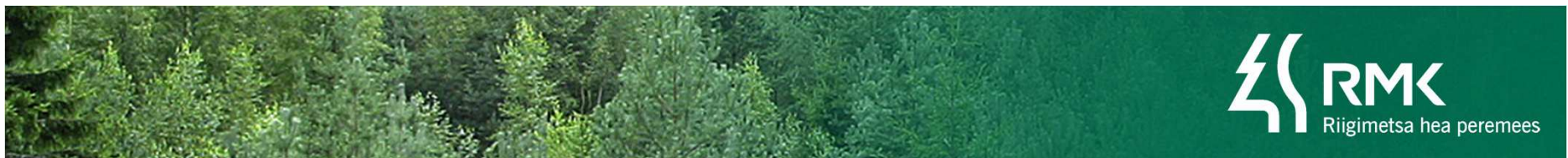
Background

- **Economically important species:**
Scots pine, Norway spruce, Silver birch
- **Annual need for seeds in Estonia:**
pine- 700 kg, spruce- 300kg, birch- 50 kg
- **Seeds for nurseries- from seed orchards (pine- 200 kg, spruce-300 kg, birch- 20 kg)**
- **Seeds for forest sowing- from stands**



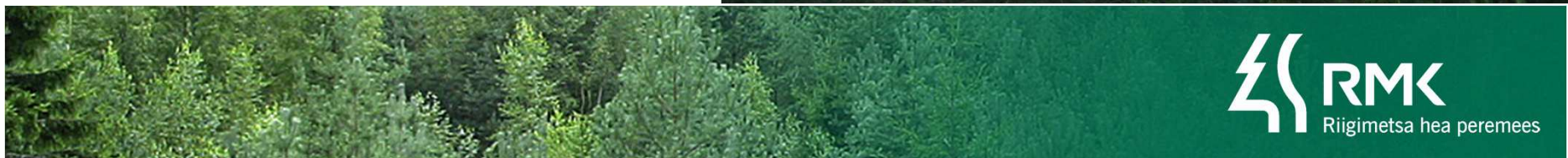
- In 1959-plus trees of Scots pine
- In 1963-plus trees of Norway spruce
- In 1970s-plus trees of Silver birch

- In 1976: 424 plus trees of pine, 200 plus trees of spruce, 26 plus trees of birch



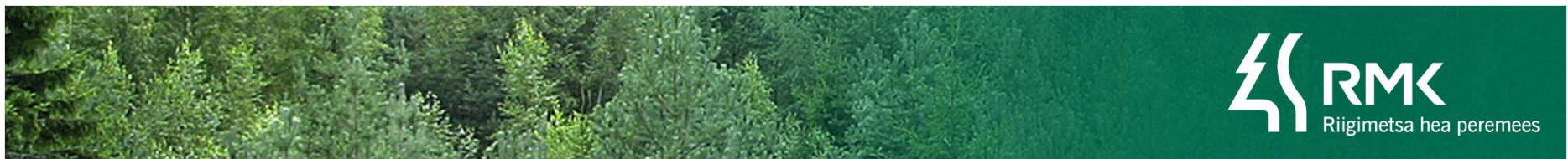
Pine seed orchards

- Establishment started in 1965 and stopped in 1980
- Grafts from selected plus trees
- 150 ha actively managed at the moment



Pine seed orchards

- Establishment continued in 1997
- Grafts from old seed orchards
- Seed-producing
- Total area 36 ha



Spruce seed orchards

- **Establishment started in 1965 and stopped in 1982**
- **Grafts from selected plus trees**
- **30 ha actively managed at the moment**



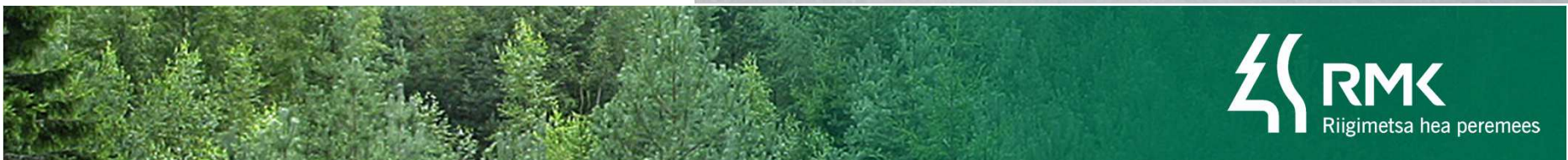
Spruce seed orchards

- Establishment continued in 1997
- Grafts from old seed orchards
- Total area 22 ha



Birch seed orchards

- Establishment started in 2002
- Grafts from selected plus trees
- Total area 4 ha

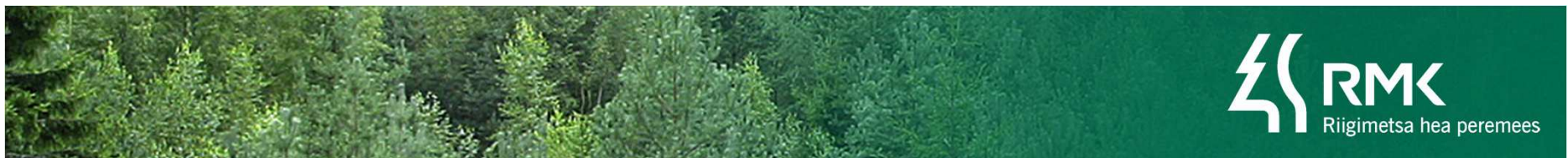


Birch seed orchards

- Greenhouse seed orchard of birch established in 2007, area 1000 m²
- Grafts form plus trees



- **State Forest Management Centre (RMK) is managing seed orchards**
- **Total area of seed-producing seed orchards 200 ha and young seed orchards 60 ha**
 - 165 ha of seed-producing pine seed orchards**
 - 33 ha of seed-producing spruce seed orchards**
- **402 pine clones and 175 spruce clones**



Output of seed orchards

■ Mean annual output from 2001 to 2012:

1.3 kg/ha for pine

5.9 kg/ha for spruce

■ Mean annual output of seed years:

1.8 kg/ha for pine

34.2 kg/ha for spruce



■ According to forest seed management development plan until 2030:

To supply Estonian nurseries with seeds from seed orchards

170 ha of pine seed orchards

70 ha of spruce seed orchards

4 ha of birch seed orchards (incl. greenhouse orchard)

Pine: to renew old orchards

Spruce: to renew old orchards and to establish new orchards



■ *Progeny testing project was started in 2011*

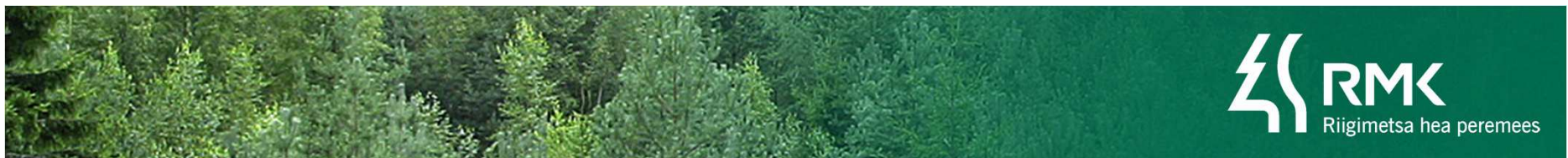
450 new plus trees of pine and spruce

450 selected clones from old seed orchards

plantations of pine and spruce with 90 000 plants

9000 grafted plants from new plus trees

to get higher generation seed orchards





Thank You!