The cultivation of poplars and willows in Bulgaria has begun more than 60 years ago. On the territory of Bulgaria, the poplars and willows stands are located predominantly in the strip of lands between the dyke and the river bank as well as on the islands of Danube River. Most of these lands are state-owned forest territories. There are poplars and willow’s stands in the plains – on agricultural lands, around dams, irrigation canals and other water bodies, mainly municipal and private ownership. Afforestations in rows along the roads and railways; in the forest shelter belts on abandoned agricultural lands, etc. are also accomplished.

I. POLICY AND LEGAL FRAMEWORK
After the new Forest Law adopted in 2011 amendments were made to some of the most important legislative documents regulating the activities of forestry of the Republic of Bulgaria. New strategic documents were also adopted:

- Ordinance № 21/12.11.2012 on the terms and conditions for determination, approval, registration and withdrawal of basic material from the forest seed base, collection and extraction of forest reproductive material, testing, marketing and import
- Ordinance № 4/15.02.2012 on terms and conditions for registration of forest nurseries and production of seedlings in forest nurseries - state property
- Ordinance № 2/02.07.2013 on the forestation of forest territories and agricultural lands used for establishment of special, protective and commercial forests and forests in protected areas, inventory of forest plantations, their reporting and registration
- Ordinance № 18/07.10.2015 for forest inventory and planning
- Ordinance № 8/05.08.2011 г. For fellings in forests
- National strategy for the development of the forest sector in Republic of Bulgaria 2013-2020
- Strategic plan for the development of the forestry sector in Republic of Bulgaria 2014-2023

According to the Forest Law /Art. 88 (5)/ fast growing tree species on agricultural lands or urban plots with short rotation period, created for wood production are not managed as forest. By establishment of protective forests, the afforestation with fast growing tree species is a priority.

The Ordinance № 21 on the terms and conditions for determination, approval, registration and withdrawal of basic material from the forest seed base, collection and extraction of forest reproductive material, testing, marketing and import which introduces the
provisions of EU Directive 1999/105 is in force in Bulgaria since 2012. The Ordinance is applied for reproductive materials of the tree species and their artificial hybrids, including poplars which are significant for the forestry of the Republic of Bulgaria and the other EU Member States.

The “Classification scheme of the poplar forest stands in Republic of Bulgaria” and “Instruction for establishment and mapping of the forest stands types and for the definition of the composition of dendrocenoses” is in force since 2011.

The European ecological network NATURA 2000 in Bulgaria includes a big part of poplar and willow stands along the Danube river and other rivers in the country.

II. TECHNICAL INFORMATION

1. Identification, registration and varietal control

The identification, registration and the species control of the poplar clones is carried out in compliance with the Ordinance № 21 by authorized official bodies. Genetic examination of the poplar clones has not been made and is not made in Bulgaria.

The testing is carried out according to “Methodology for selection of poplars and willows in Bulgaria”. Approved clones for comparative testing are I-214 for poplars and Bg 2/64 for willows.

For the period 2012-2015, the results from 7 testing experiments with poplars are obtained. The testing terms were in the frame of one rotation period /15 years/. The design of the trails is with density from 5 x 4 m to 6 x 5 m with 3 repetitions. P x euroamricana and P x interamericana, Populus nigra L. and Populus alba L are used. The statistical analysis shows, that some of these clones are with equal or better growth than the comparative clone – P. I – 214

For practical use /mainly for establishment of lingo-cellulosic cultures/, the most used poplars and willows are: I – 214; I – 45/51; I – 39/61; Triplo(I – 37/61); BL Costanzo; MC ( Melone Carlo); Agathe F; CB – 7; OP – 229; Robusta incl. Vernirubens; Bachelieri; R – 16 Hirsova; Lux; Onda (I – 72/51); A – 194; Cl 55/65


For establishment of experimental trails for production of biomass PANNONIA; NNDV и Luiza Avanzo are used.

New poplar and willow clones are not registered in Bulgaria more than 20 years. In this relation, Executive forest agency participate in the international project for testing of new poplar clones for production of biomass with Lead Partner Forest seed control station Teisendorf, Germany. The project started in 2014 and will be implemented 8 years. At the moment 13 new poplar clones ij two test-areas /south and north Bulgaria – in State forest enterprise Pazardzik and State forest enterprise Montana/ are tested.

2. Production Systems and Cultivation

The production of stem cuttings from poplars and willows in Bulgaria is organized in two central nurseries - in north Bulgaria – in State forest enterprise Svishtov and in south Bulgaria – in State forest enterprise – Pazardzik.
To guarantee the successful production of planting stock some requirements need to be implemented: ensuring authentic materials for production of leading shoots and cuttings; establishment of stool beds for production of leading shoots and cuttings; ensuring standard size of the cuttings and production of standard plants for afforestation; ensuring the cultivar purity, etc.

(a) Nursery practices and propagation techniques including applications of biotechnology - particularly plant propagation, reproductive materials, use of GMOs etc.

Stool beds from 24 clones with production capacity of more than 2 mln. cuttings, covering the needs of the whole country are established.

The production of poplar shoots is realized from constant or by way of exception from 1-year-old stool beds. The distances between rows of stools are typically 1.8 m and the density of the stools in beds is from 0.30 m up to 0.35 m, ensuring optimal conditions for production of qualitative cuttings. Between the stool beds from different clones the distance is 3.5 m. At the moment for more effective use of the area and better yield on unit area, a new stool beds scheme is implemented: 1.8 m x 0.5 m x 1.8 m. The density of the stools is 0.3 – 0.5 m. Controlled irrigation and fertilization is realized.

The vitality of the stool beds is about 20 years, achieved through their maintenance.

➢ Production of poplar cuttings.

For the period 2012 – 2015 in Bulgaria are produced 2 343 360 poplar cuttings:

1. P. x eur.cv. I -214 - 1 075 340 pcs – 45,9%
2. P. x eur.cv. Agathe F – 482 000 pcs – 20,6%
3. P. x eur.cv. BL – 182 800 pcs – 7,8 %
4. Populus Nigra L – 179 000 pcs – 7,6% 
5. P. x eur.cv. I -37/61 /Triplo/ - 72 700 pcs - 3,1%

![Bar chart showing the share of produced poplar cuttings for the period 2012-2015](image)

Fig.. The share of produced cuttings in State forest enterprise Pazardzik
As a consequence of structural changes and economic problems, a decline in poplar cuttings production is expected.

Yield of hardwood poplar stem cuttings 2012 – 2015 in State forest enterprise “Svishtov”

<table>
<thead>
<tr>
<th>№</th>
<th>Tree species, cultivar ap</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Общо</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>P. nigra L</td>
<td>1500</td>
<td>47000</td>
<td>145000</td>
<td>140000</td>
<td>347000</td>
<td>56.0</td>
</tr>
<tr>
<td>2</td>
<td>P. I – 214</td>
<td>1000</td>
<td>6800</td>
<td>8000</td>
<td>25000</td>
<td>40800</td>
<td>6.6</td>
</tr>
<tr>
<td>3</td>
<td>P. BL Costanzo</td>
<td>4500</td>
<td>6800</td>
<td>9000</td>
<td>18000</td>
<td>38300</td>
<td>6.2</td>
</tr>
<tr>
<td>4</td>
<td>P. Pannonia</td>
<td>2000</td>
<td>7000</td>
<td>8000</td>
<td>27000</td>
<td>44000</td>
<td>7.1</td>
</tr>
<tr>
<td>5</td>
<td>P. NNDV</td>
<td>500</td>
<td>6000</td>
<td>6000</td>
<td>8000</td>
<td>20500</td>
<td>3.3</td>
</tr>
<tr>
<td>6</td>
<td>P. Triplo (I – 37/61)</td>
<td>3600</td>
<td>7500</td>
<td>20000</td>
<td>25000</td>
<td>56100</td>
<td>9.1</td>
</tr>
<tr>
<td>7</td>
<td>P. MC ( Melone Carlo)</td>
<td>2700</td>
<td>6000</td>
<td>9500</td>
<td>15000</td>
<td>33200</td>
<td>5.4</td>
</tr>
<tr>
<td>8</td>
<td>P. Robusta R – 16</td>
<td>4000</td>
<td>6400</td>
<td>8000</td>
<td>15000</td>
<td>33400</td>
<td>5.4</td>
</tr>
<tr>
<td>9</td>
<td>P. Agathe F</td>
<td>32300</td>
<td>93500</td>
<td>215000</td>
<td>277000</td>
<td>618800</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>S. alba L. – Bg. 2/64</td>
<td>1200</td>
<td>2500</td>
<td>3700</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B) **Planted Forests** with emphasis on the choice of cultivars, type of plants, spacing and layout of plantations; planting and tending (fertilization, irrigation, weeding, pruning, thinning etc.); management (growth, rotation in relation to yields and industrial requirements).

The main management role of poplar and willow plantations remains unchanged – intensive production of large-sized sawn and industrial timber.

➢ Selection of cultivars

The share of P.x eur. cv. I – 214 is more than 60% and in some Forest enterprises is more than 80%. In south Bulgaria along river banks, the cottonwoods /Aigeiros section/: A – 194 и cl. I 55/65B are used. On higher altitude and along mountain rivers and on humid soils, hybrids of balsam poplars are used; P. alba cl. I – 58/57 – on sand-clay soils; P. x eur. cv. NE 367 - in coastal zone; P. x eur. cv. Agathe F – on drained terrains. The Leuce section is used mostly on dry terrains – P. alba - „C - 10”; „C - 40” and „C - 56” and P. canescens - Bg II – 38. Mostly used willow clone is Bg 2/64.

➢ Planting schemes and densities.

The recommended scheme that best performs the conditions for production of large poplar timber is described as a hexagonal shape in the planting areas. The densities are 6 x 5.2 m. and 5 x 4.33 m placed in chess-board order. In cultures with intermediate use the initial density for planting is 4 x 4 m. Willow crops for production of timber are created at a density of 3 x 3, 3 x 4 to 4 x 4 m., and for protective purpose at a density of 1 x 2 and 2 x 2 m.

In recent years, for various reasons we were given freedom of choice and practical changes on places. In practice, a few years ago the prevailing density in the poplar
plantations was 5 x 4 m., with a wide variety of other densities ranging from 3 x 3 m. to 5 x 6 m. Schemes with interim use and careful and slower thinning of plantations were avoided. Gradually, these tendencies are changing and report positive practices about the increase of the share of the plantations in the square schemes depending on the habitus of the crown. In this respect there are practices for specialized plantations of narrow crown poplars from the type - linear and group afforestation.

Types of saplings
They are defined under the Ordinance № 4 from 15.02.2012 on the terms and conditions for registration of forest nurseries and production of saplings in forest nurseries - state property.

Sorting and qualification of the saplings of poplars and willows are conducted by the manufacturer according to their height as follows:

1. Euro-American poplars:
   a) first quality with height over 3.0 m.;
   b) second quality with a height of 2.5 to 3.0 m.;
2. Dendriform/ tree-like willows:
   a) first quality with a height of 2.5 to 3.0 m.
   b) second quality with a height of 2.0 to 2.5 m.;
3. For species and clones of section Leuce and black poplar::
   a) first quality with height over 2.0 m.;
   b) second quality with a height of 1.5 to 2.0 m.

The patricians in Bulgaria work primarily with one-year-old saplings having one-year-old stem and one-year-old root (1/1). Vegetatively propagated poplar and willow saplings with one-year-old stem and two-years-old root (1/2) are used rare. Propagation of saplings by seeds is not practiced.

After conducting a detailed forest inventory, poplar and willow saplings are marked with one or more painted rings at a height not less than 1 m. from the root collar with color which corresponds to the clone or variety, according to Ordinance or indicative list annexed to it.

PRODUCED ONE-YEAR-OLD POPLAR SAPLINGS IN THE NURSERY OF TERRITORIAL DIVISION OF THE STATE FORESTRY – SVISHTOV from 2012 to 2015

<table>
<thead>
<tr>
<th>№ порядок</th>
<th>Wood species, variety, cultivar</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Общо</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>P. nigra L</td>
<td>1300</td>
<td>2500</td>
<td>2400</td>
<td>6200</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>P. I – 214</td>
<td>5700</td>
<td>42000</td>
<td>32300</td>
<td>80000</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>P. BL Costanzo</td>
<td>1500</td>
<td>4500</td>
<td>13000</td>
<td>19000</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>P. Pannonia</td>
<td>1000</td>
<td>1500</td>
<td>4500</td>
<td>15500</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>P. NNDV</td>
<td>5600</td>
<td>600</td>
<td>5800</td>
<td>6000</td>
<td>18000</td>
</tr>
<tr>
<td>6.</td>
<td>P. Triplo (I – 37/61)</td>
<td>2200</td>
<td>350</td>
<td>1700</td>
<td>4250</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>P. MC (Melone Carlo)</td>
<td>3500</td>
<td>2600</td>
<td>14600</td>
<td>20000</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>P. Robusta R – 16</td>
<td>3500</td>
<td>7000</td>
<td>13800</td>
<td>24300</td>
<td></td>
</tr>
</tbody>
</table>
Large volume from the afforestations is carried out in the autumn.

(c) Indigenous Forests, with emphasis on experiences and experiments concerning silvicultural treatments, harvesting, management, protection and regeneration.

In Poplar enterprise – Pazardzik were collected and propagated ex situ 28 indigenous cultivars of Populus Nigra L. From them through cultivated selection, a stool bed with an area of 2 ha was created for production of propagation material – cuttings for the whole country. For the period 2012-2015 were produced 179 000 cuttings for production of poplar plants from indigenous poplar cultivars for formation of poplar plantations from Populus nigra L on the area of 230 ha.

The anthropogenic factor caused a strong negative impact over the indigenous plantations in the plains along the rivers. Logging and rooting out these riverside ecosystems fragmented and limited the natural distribution area of the local tree species. The deterioration of the growing environment is also a result from the corrections of the rivers, the extraction of inert materials, and the drainage of the floodplain stands.

The diversity and species composition were reduced and gradually become poorer. This circumstance put again the necessity to seek opportunities to use native tree species, which are typical for these habitats (wet zones), including P. nigra L; P.alba L; P. canescens Sm. and various species of willows.

- Preservation and maintenance of wild (natural) populations of P. nigra L

The individuals from P. nigra, which distribute the genetic information, are quantitatively few. It could be seen that the gene pool of this kind was reduced and became poorer. There are trees with negative phenotypic characteristics.

A mapping of the population of black poplar along the Danube River was made. Ex situ collections for conservation and description of the genetic diversity and for restoration of priority habitats in Natura 2000 were created.

Plants for in situ conservation in the area of their natural distribution were organized.

Selection and propagation of P. nigra from natural stands, bio groups or single trees, in connection to restoration activities, production of planting material and creation of plantations were performed.

33 number of trees of P. nigra L. were selected in nature, described and pasportized by the method clonal selection. The forest stands along the Danube River valley; valleys of Iskar River and Tundzha River and single trees or group of poplars outside river stands are used.

The species diversity of P. nigra is much less expressed because of the small size of the bio groups and the distance between each of these groups. These circumstances significantly restrict the activity of the panmixis which typically occurs in the range of the bio groups, and can hardly be performed between them.

A small stool bed was set up and saplings for afforestation were produced.

Individuals from selected in the past poplar clones from the hybrid combination P. n. L. cv. „Shipka” x P. n. L. cv. „Italica S”, identified as P.x cv. Bg IV(Bg.IV – 3; Bg IV – 6; Bg IV – 9; Bg IV – 27; Bg IV – 26) were used.
The interest in white poplar (P. alba L.) compared to black poplar (P. nigra L.) is much smaller for now. Its qualities are expressed in its large species diversity. Besides the selected in nature plus trees - 21 numbers of white poplars also clones of P. alba L, which showed positive results in variety testing experiments were autovegetatively propagated. On the gray forest soils with nearby underground water and on the fertile black soil /chernozem/ with carbonates and underground water under 1 - 1.5 m., the clones "C - 10", "C - 40" and "C - 56" are with good growth indicators. These clones can be considered as a tested offspring with known (detected) idiotype. The service and taxation surveys of the forest cover in the crops in these three clones of white poplar showed comparability with "absolute plus tree". Ways for their practical propagation and afforestation in crops are sought.

- P. canescens Sm.

In most cases it comes superior in stem straigtness and piled with thin branches crown to the other two native poplar species.

Until 2-3 years ago the gray poplar didn’t find a place in the forestry breeding, even via cultivars obtained through hybridization of species which are resistant to heart-rot processes (Fomes igniarus).

The growth and productivity results of the poplar clone P. a. t. cv. Bg 38 (II / 38) on alluvial soil and black soil - vertisol are very good. When the density is 4 x 3 m. and the trees are 19 years-old in a crop, the average diameter is 34 cm., and the average height is 24 metres. After the assortment a stock of 850 m³ standing wood per hectare and weight of about 500 mg/cm³ is obtained. The variety shows comparative resistance to the main causes of decay of the poplar's stems - Fomes fomentarius, Phellinus igniavina, Pholiota populnea, etc. An important biological feature of the hybrid is the stem straightness.

(d) Agroforestry and Trees Outside Forests with emphasis on their effects on forest and agricultural crops or livestock and diversification of the landscape.

During the reporting period the joint cultivation of agricultural plants in the rows of the poplar plantations has decreased in volume for various reasons but also positive practices can be find. In agro-forestry system along the Tundzha River near the State Forest Enterprise (SFE) Parvomai the received interim results for a narrow crown poplar clone of poplar I 45/51 with a vegetable garden, peanuts, pumpkins, potatoes and herbs showed better results than expected.

In lowland areas of the country, mostly in Southern Bulgaria, private landowners apply rare schemes for logging of poplar crops and plant in rows sunflower, corn, beans, peanuts, herbs or technical agriculture crops.

In the state forest enterprises more widespread is the practice of short-term pre-use of areas, which are subject to afforestation for cultivation of agricultural crops.

The importance of poplars and willows in linear afforestatons is undoubtedly big. They are indirectly related to agro-forestry as they perform protective and economic functions. They are planted along canals, roads, dams and small reservoirs, fields, rivers, valleys, built-up areas, etc. Although there is no accurate information on the amount of linear and group planting of poplars and willows, they are widely practiced throughout the country.

In the last two years this form of double-line and multiple linear planting of saplings was enforced as counteraction against the torrential floods which occurred in the country.
Modern landscape architecture covers larger areas around towns and villages. Planted are willows and poplars as they have exceptional species and form variety, rapid growth, various habitus, various coloring of the stems, bark, branches and leaves. These species are ecologically the most suitable for "landscape units". Willow trees and shrubs and pyramid poplars are best biologically adapted to the growth characteristics around water areas "water mirrors", "cascades", etc./. Landscaping companies use mostly poplars and willows in their operations. Pyramidal forms of poplars P. Simonni, P. cv. Italica и P. nigra Shipka, and male poplars with decorative qualities as SUDAR (B 1326); UNAL(ex Unal 7,S 910 – 1); MEGGEYLEVELU(P. 275); ANOROSCOCCIN and others are sought. Especially valuable with their color tint are various willow shrubs as well as various forms of willow trees (S.madtsudana) and (Salix babylonical).

3. Genetics, Conservation and Improvement
Mainly due to financial reasons, the development of activities for genetic improvement of the poplars and willows in Bulgaria are limited. Introduction after testing (at least 10–15 years) of hybrid poplars from well-known world selection and genetic centers is practiced.

4. Forest Protection
Report on the incidence, scale and impacts of damage in poplars and willows by biotic and abiotic agents:
(a) Biotic factors including insects, diseases and other animal pests and outline economic aspects and success of control measures undertaken and damage prevention in the future.
Following insect pests are very aggressive and cause big damages: Pavanthrene taboniformis Rott, Gypsonoma aceriana Dup and Saperda populnea L. The most common poplar diseases, related with climate conditions in Bulgaria are: bark necrosis, caused by Dothichza populea, Cytospora sp., Fusariun sp.; slime flux; leaf blight on P. euroamericana, caused by Marssonina brunnea. From the damages caused by the game, the higher are those, caused by the deer. Important are also frosts.
(b) Abiotic factors including winds, floods, droughts, pollution and others, and outline economic aspects and success of control measures undertaken and damage prevention in the future.
In some poplar nurseries in north Bulgaria damages because of hailstorms were registered.

6. Harvesting and Utilization
Report on the application of new knowledge, technologies and techniques in:
(a) Harvesting of poplars and willows.
(b) Utilization of poplars and willows for various wood products:
(c) Utilization of poplars and willows as a renewable source of energy ("bioenergy"). There is a tendency in the country towards increase in the demand of poplar and willows wood. An interesting fact is the application of poplar and willow wood as massive elements in the production of furniture and linings. The demand has begun for willow sided wood for beehives, floor planking and furniture.
There is a shortage in the country of poplar wood, especially in the category “large”, which big manufacturers seek to cover from import. The cost of the extracted wood is also increased. The existing form of logging cannot secure technically and technologically the process. Short-rotation poplar and willow plantations In Bulgaria this production is still experimental. The collected scientific information and experimental activity allow the technological implementation for an effective production in practice. The owners of lands and forests show interest, but they feel hesitations about the processing and utilization of the harvested material (phytomass) into marketing products.

Object of study during the period are the possibilities of utilization of willow trees and S. vivinalis in short rotation plantations for biomass:

- Productivity (t/ha) of one-year-old leading shoots on stumps after the 2-nd rotation (3 years) against the percentage of survival of 10 clones of willows. The density of the plantation 2.00 m. x 0.30 m. and used willow clones, respectively five pieces of Salix and five pieces of Vetrix. The gained phytomass (excluding leaves), with 80% survival of three clones is about 47 t/ha fresh weight.

6. Environmental Applications

Report on the application of new knowledge, technologies and techniques for cultivation of poplars and willows for:

(a) Site and landscape improvement (bank stabilisation, combating desertification and salinization, shelterbelts and windbreaks, soil rehabilitation, urban and peri-urban forestry for climate modification etc).

б) Фиторемедиация на замърсена почва и вода /буферни зони, замърсени местности, управление на отпадни води/третиране и други/

(b) Phyto-remediation of polluted soil and water (buffer zones, contaminated sites, waste water management/treatment etc).

Despite the large number of rivers, streams, dams and lakes in our country there is an adverse water balance and the natural vegetation along the biggest river valleys, coastal areas, sea coast and small rivers is insufficient and in poor condition.

It is known that only 12% of the area of the lowlands in the country is covered by forests and they are the least forested terrain in the country. But there are placed the richest agricultural areas which are "cut" by numerous river valleys, small rivers and streams. This requires rational measures for purposeful afforestation in order to mitigate the watercourse, protection of the soil along the coast, control of wind erosion, etc. Here is the place of the poplars and willows to regulate the ecological balance in many of these regions.

Along the Danube river and on the dike and along the banks of inland rivers a willow strip with a width of 10-15 m. is kept. Its purpose is to control landslides on river banks and dikes and to protect the created poplar plantations. The model "Environmental management of the dike-bank zone and island territories" defines the lowest part of the north coast to the level of the river at a height of 1m above average level of the Danube River, to be filled with willow crops planted at a density of 1 x 1m.

Logging is carried out twice and consecutively, in every 3-4 years or more on narrow strips along the river in order to preserve the integrity of the protective plantations.
The environmental applications of poplars and willows are related to their water and soil protective functions. Poplar and willow plantations play an important sanitary and microclimate regulation role. Planted in rows, strips or groups around farmyards and industrial enterprises they serve as dust collectors and protection against climatic changes.

When stabilization of the banks and meliorating afforestations are performed, soil preparation of 30-40 cm is made and one-year-old willow saplings are planted at a depth of 80 cm. Two-year-old saplings are planted on sandy soils at depth of 100 cm.

In recent years a common practice is the well known method of planting on the steep slopes of the Danube River and some major internal rivers by using one- or two-year-old roofing poles. The poles are planted as deep as possible (more than 1m depth) on heavy soils.

Although the extreme drought tolerance of some species of willows from section Daphnoides and their role for strengthening the shifting sands, for planting on sandy deserted places and other abandoned places, their practical application in this regard during the period is negligible.

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3 Relations with other countries

With regard to the need for cooperation in the field of poplar clonal selection in order to spread the results of breeding activities to the benefit of growers and users, the exchange of poplar clones at an European level is intended within the project EW13/14. The project is coordinated by the Bavarian Office for Forest Seeding and Planting (ASP) in behalf of
the Bavarian Ministry for Nutrition, Agriculture and Forestry. Executive forest agency is a partner organisation and at the moment 13 poplar clones are tested in two test areas in the country for production of biomass.