Food and Agriculture Organization of the United Nations

# *QUESTIONNAIRE ON POPLARS AND OTHER FAST-GROWING TREES SUSTAINING PEOPLE AND THE ENVIRONMENT 2020 - 2023*

## *INTRODUCTION*

The questionnaire is designed to complement the Country Reports for the 27th Session of the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC) in 2024.

Response to the questionnaire is crucial for FAO to allow country, regional and global analyses of status and trends in forest sector development and to assist in improving formulation of policies, preparing outlook studies and undertaking planning, management, monitoring and reporting.

The questionnaire has four questions. In the case that detailed primary data is not available, aggregated statistics and best professional estimates are appreciated.

## CONTACTS

For queries in completing this questionnaire, please contact:

Thais Linhares-Juvenal, IPC Secretary, IPC-Secretariat@fao.org

**Thank you**

Food and Agriculture Organization of the United Nations

## Contact information:

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|---|---|
| **Country:** | SWEDEN |
| **Contact person :** | Anneli Adler |
| **Position of contact person:** | Chair of the National Commission of Fast-Growing Broadleaves |
| **E-mail:** | anneli.adler@slu.se |
| **Telephone:** | 0046707175861 |

## Terms and definitions

The main FAO categories of land with a tree component are classified as[1]:

| | |
|---|---|
| **Naturally regenerating forest** | Forest predominantly composed of trees established through natural regeneration<br>*Explanatory notes*<br>1. Includes forests for which it is not possible to distinguish whether planted or naturally regenerated.<br>2. Includes forests with a mix of naturally regenerated tree species and planted/seeded trees, and where the naturally regenerated trees are expected to constitute the major part of the growing stock at stand maturity.<br>3. Includes coppice from trees originally established through natural regeneration.<br>4. Includes naturally regenerated trees of introduced species. |
| **Planted forest** | Forest predominantly composed of trees established through planting and/or deliberate seeding.<br>*Explanatory notes*<br>1. In this context, predominantly means that the planted/seeded trees are expected to constitute more than 50 percent of the growing stock at maturity.<br>2. Includes coppice from trees that were originally planted or seeded. |
| **Plantation forest (Sub-category of planted forest)** | Planted Forest that is intensively managed and meet ALL the following criteria at planting and stand maturity: one or two species, even age class, and regular spacing.<br>*Explanatory notes*<br>1. Specifically includes: short rotation plantation for wood, fibre and energy.<br>2. Specifically excludes: forest planted for protection or ecosystem restoration.<br>3. Specifically excludes: Forest established through planting or seeding which at stand maturity resembles or will resemble naturally regenerating forest. |
| **Agroforestry** | "Other land with tree cover" with temporary agricultural crops and/or pastures/animals.<br>*Explanatory notes*<br>1. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.<br>2. Includes agrisilviculturural, silvopastoral and agrosilvopastoral systems. |
| **Trees in urban settings** | "Other land with tree cover" such as: urban parks, alleys and gardens |

| | |
|---|---|
| **Forest** | Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.<br>*Explanatory notes*<br>1. Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters in situ.<br>2. Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 percent and tree height of 5 meters. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used. |

[1] See the Global Forest Resources Assessment 2020 Terms and Definitions, http://www.fao.org/3/I8661EN/i8661en.pdf

| | |
|---|---|
| | 3. Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.<br>4. Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.<br>5. Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of 10 percent and tree height of 5 meters.<br>6. Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.<br>7. Includes rubber-wood, cork oak and Christmas tree plantations.<br>8. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.<br>9. Includes areas outside the legally designated forest land which meet the definition of "forest".<br>10. Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry systems such as the "Taungya" system where crops are grown only during the first years of the forest rotation should be classified as forest. |
| **Other land with tree cover** | Land classified as "remaining land area", spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.<br>*Explanatory notes*<br>**1. Land use is the key criteria for distinguishing between forest and other land with tree cover.**<br>2. Specifically includes: palms (oil, coconut, dates, etc), tree orchards (fruit, nuts, olive, etc), agroforestry and trees in urban settings.<br>3. Includes groups of trees and scattered trees (e g trees outside forest) in agricultural landscapes, parks, gardens and around buildings, provided that area, height and canopy cover criteria are met.<br>4. Includes tree stands in agricultural production systems, such as fruit tree plantations/orchards. In these cases the height threshold can be lower than 5 meters.<br>5. Includes agroforestry systems when crops are grown under tree cover and tree plantations established mainly for other purposes than wood, such as oil palm plantations.<br>6. The different sub-categories of "other land with tree cover" are exclusive and area reported under one subcategory should not be reported for any other sub-categories.<br>*7.* Excludes scattered trees with a canopy cover less than 10 percent, small groups of trees covering less than 0.5 hectares and tree lines less than 20 meters wide. |

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## Question 1: Total area 2023, and area planted from 2020 to 2023 (area change over the last 4 years)

In the following table please indicate for the year 2023 the area (ha) of poplars and willows, the forest area allocated to forest functions (%) and the area planted from 2020 to 2023 (4 years). For other fast-growing species (OFGS)[2], please list the most important species or genera for your commission, adding as many additional lines to the table as is appropriate.

*Table 1. Area; Please note that the total of the four forest functions cannot be more than 100% horizontally*

| Land Use Category | | Total Area 2023 (ha) | Total area by forest function in % | | | | Area planted from 2020 to 2023 (ha) |
|---|---|---|---|---|---|---|---|
| | | | Production | | Protection | Other | |
| | | | Industrial roundwood (%) | Fuelwood biomass (%) | (%) | (%) | |
| **Naturally Regenerating Forest** | | | | | | | |
| | **Poplars** *P.tremula*[1] | 173439 | *50%* | *20%* | 5% in nature reserves | *25%* | N/A |
| | **Willows** *S.caprea*[2] | 45642 | | *70%* | 5% in nature reserves | *25%* | N/A |
| | **Mix of P&W** | | | | | | N/A |
| | **OFGS*** | | | | | | |
| *Betula pendula,B. pubescens*[3] | | 1113663 | *50%* | *20%* | 5% in nature reserves | *25%* | N/A |
| | *Alnus glutinosa*[4] | 155183 | | *70%* | 5% in nature reserves | *25%* | N/A |
| *B. pubescens var. tortuosa outside* | | *750000* | | | | | N/A |
| **Planted forest** | *productive forest area*[5] | | | | | | |
| | **Poplars** | *Might be some hectares of hybrid poplars and hybrid aspens on clear cut forest land* | | | | | |
| | **Willows** | *0* | | | | | |
| | **Mix of P&W** | | | | | | |
| | **OFGS*** | | | | | | |
| *Betula species - the report SKOGSDATA does not differenciate between planted birch and birch from natural regeneration* | | | | | | | |
| | *Alnus glutinosa - very small share of the figure above is planted Alnus, it is not reported separately* | | | | | | |
| | | | | | | | |
| **Plantations** | on former agricultural land | | | | | | |
| | **Poplars** | 2729* | 70% | 30% | | | 299 |
| | **Willows** | 3575* | | 100% | | | -2396 |
| | **Mix of P&W** | | | | | | |

[2] IPC-Convention (2019)
**Article III - Functions**
The functions of the Commission shall be:
a) to study and engage on scientific, technical, social, economic and environmental aspects of **Populus and other fast- growing trees. In addition to the Commission's work on the genus Populus, the Commission's subgroups may work on other genera that sustain people and the environment.** Priorities of the Commission's work are forest resources production, protection, conservation and utilization, with a view to sustaining livelihoods, land uses, rural development and the environment. This work includes food security issues, climate change and carbon sinks, biodiversity conservation and resilience against biotic and abiotic threats, and combating deforestation.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **OFGS*** | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| **Other planted forest** | | | | | | | |
| | **Poplars** | | | | | | |
| | **Willows** | | | | | | |
| | **Mix of P&W** | | | | | | |
| | **OFGS*** | | | | | | |
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| | | | | | | | |
| **Other Land with Tree Cover** | | | | | | | |
| **Agroforestry** | **Poplars** | *0* | | | | | |
| | **Willows** | *0* | | | | | |
| | **Mix of P&W** | | | | | | |
| | **OFGS*** | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| **Trees in urban settings** | **Poplars** | *Single trees here and there* | | | | | |
| | **Willows** | *0* | | | | | |
| | **Mix of P&W** | | | | | | |
| | **OFGS*** | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| **Grand Total** | | | | | | | |

*** Other fast-growing species; please list the most important species for your commission, adding as many additional lines to the table as is appropriate (e.g. under OFGS, add *tectona* spp.)**

***[1]Calculated from total growing stock (64.5 mill m3sk) of P.tremula in productive forest land 2023 (Skogsdata 2024) and productive forest area of different forest types (Tabel 3.1a. column other broadleaved forests 6.3% of 23 473 000 ha excluding valuable broadleaved forest. The category 'Other broadleaved forests' should include the fast-growing species listed here).***
***[2]Calculated from total growing stock (16.5 mill m3sk) of Salix caprea in productive forest land in 2023***
***[3]Calculated from total growing stock (406 mill m3sk) of Betula pendula and Betula pubescens. in productive forest land in 2023***
***[4]Calculated from total growing stock (58 mill m3sk) of Alnus glutinosa and Alnus incana in productive forest land in 2023***
*[5]Calculated as 16,9% of the area outside productive forest land (27 900 000 ha - 23 473 000 ha) in 2023, we assume that most of this area is categorized as other wooded land and is covered by mountain birch (fjällbjörk), but also native Populus and Salix species.*

*Other - in Sweden we have the regulation that does not allow harvest of broadleaved trees several meters from ditches and rivers on forest land to protect water and habitats of forest living species. Here we assume that these areas might include 25% of total growing stock (and area) of different fast-growing broadleaves.*

** Milton, Richard at Swedish Board for Agriculture. Personal communication via e-mail July 5th 2024.*

## Question 2: Wood removals in 2023

Please quantify by forest category, species and/or cultivar the wood removals in cubic meter ($m^3$) of each respective product. If possible group the total removals according to industrial roundwood and fuelwood/wood chips. For other fast-growing species; please list the most important species for your commission, adding as many additional lines to the table as is appropriate (e.g. under OFGS, add tectona spp.)

*Table 2 Wood removals*

| Forest category and species, cultivar or clone | | Wood removals 2023 in $m^3$ | | | | |
|---|---|---|---|---|---|---|
| | | Total removals | for industrial round wood | | | for fuelwood, wood chips |
| Naturally regenerating forest | | | Veneer/plywood | Pulpwood | Sawnwood | |
| | **Poplars** | | | | | |
| | **Willows** | | | | | |
| | **Mix of P&W** | | | | | |
| | **OFGS*** | | | | | |
| ***Betula + P.tremula+ Alnus*** | | ***9,9 million forest cubic meters $m^3$sk each year between 2019 and 2023*** | | ***60%*** | ***20% (matches)*** | ***20% (mostly Alnus and tops and bark)*** |
| | | | | | | |
| | | | | | | |
| **Planted forest** | | | | | | |
| | **Poplars** | ***Small quantities, included above*** | | | | |
| | **Willows** | ***0*** | | | | |
| | **Mix of P&W** | | | | | |
| | **OFGS*** | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| **Other Land with Tree Cover** | | | | | | |
| **Agroforestry** | | | | | | |
| | **Poplars** | ***0*** | | | | |
| | **Willows** | ***0*** | | | | |
| | **Mix of P&W** | | | | | |
| | **OFGS*** | ***0*** | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| **Grand Total** | | | | | | |

*** Other fast-growing species; please list the most important species for your commission, adding as many additional lines to the table as is appropriate (e.g. under OFGS, add tectona spp.)**

## Question 3: Forest products in 2023

Please list by forest category the products that have been produced from poplars and other fast-growing species in 2023[3]. Please use **roundwood equivalents (1,000 $m^3$ r) as measuring unit.** The general conversion factors for each single product are given below (in case in your country specific conversion factors are not available):

| Product | Measuring unit of the product | Conversion factor to roundwood equivalents |
|---|---|---|
| 011. Wood fuel (including wood for charcoal) | metric tonnes or $m^3$ stacked wood | 1 metric tonne = 4 $m^3$ (r)<br>1 $m^3$ stacked wood = 1.8 $m^3$ (r) |
| 032. Wood chips and particles | metric tonnes | 1 metric tonne = 1.7 $m^3$ (r) |
| 05. Sawnwood | $m^3$ of the product | 1 $m^3$ = 1.8 $m^3$ (r) |
| 06. Veneer sheets | $m^3$ of the product | 1 $m^3$ = 1.9 $m^3$ (r) |
| 071. Plywood | $m^3$ of the product | 1 $m^3$ = 2.5 $m^3$ (r) |
| 072. Particle board | $m^3$ of the product | 1 $m^3$ particleboard = 1.4 $m^3$ (r) |
| 074. Fibreboard | $m^3$ of the product | 1 $m^3$ fibreboard = 2.0 $m^3$ (r) |
| 08. Wood pulp | metric tonnes | 1 tonne mech. pulp = 2.5 $m^3$ (r)<br>1 tonne chem. pulp = 4.5 $m^3$ (r) |

[3] See https://www.fao.org/3/cb8216en/cb8216en.pdf for the classification of forest products

*Table 3 Forest products in roundwood equivalents (1000 m3 r)*

| Forest category | Wood fuel | Wood chips and particles | Sawnwood | Veneer sheets | Plywood | Particle board | Fibreboard | Wood pulp |
|---|---|---|---|---|---|---|---|---|
| | | | **'000 m³ (r)** *annually between 2020-2023* | | | | | |
| **Naturally regenerating forest** | | | | | | | | |
| **Poplars** *P. tremula* | | | *17* | | | | | *659* |
| **Willows** | | | | | | | | |
| **Mix of P&W** | | | | | | | | |
| **OFGS*** | | | | | | | | |
| *Betula* | | | *47* | | | | | *5955* |
| | | | | | | | | |
| | | | | | | | | |
| **Planted** | | | | | | | | |
| **Poplars** | | | | | | | | |
| **Willows** | | | | | | | | |
| **Mix of P&W** | | | | | | | | |
| **OFGS*** | | | | | | | | |
| *Betula - included in the figures above, forest statistics in Sweden do not differenciate between naturally regenerating and planted birch in industrial products.* | | | | | | | | |
| | | | | | | | | |
| **Agroforestry** | | | | | | | | |
| **Poplars** | | | | | | | | |
| **Willows** | | | | | | | | |
| **Mix of P&W** | | | | | | | | |
| **OFGS*** | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Grand Total** | | | | | | | | |

*** Other fast-growing species; please list the most important species for your commission, adding as many additional lines to the table as is appropriate (e.g. under OFGS, add tectona spp.)**

*Sources:*
*SKOGSDATA 2024. Forest statistics 2024. Official statistics of Sweden. Swedish University of Agriculturl Sciences. Umeå 2024. ISSN 0280-0543. 168 pages. SLU Institutionen för skoglig resurshushållning.*
*https://www.slu.se/globalassets/ew/org/centrb/rt/dokument/skogsdata/skogsdata_2024_web.pdf*

*Biometria 2024. Skogsindustrins virkesförbrukning 2019-2023. In Swedish. Authors: Lars Björklund, Sven Jägbrant and Lars Persson. 26 pages. https://www.biometria.se/media/g4ckgtld/skogsindustrins-virkesfoerbrukning-2019-2023.pdf*

## Question 4: Please reflect on the prevailing trends until 2030 in the development of poplars and other fast growing trees in your country.

## What is your opinion on the following issues?

Please put a cross (X) in the column you think most appropriate

*Table 4 Prevailing trends*

| | increase | decrease | remain as it is | no comment |
|---|---|---|---|---|
| 1a. The conversion of **naturally regenerating** forests of poplar to other land uses will... | | | *X* | |
| 1b. The conversion of **naturally regenerating** forests of willow to other land uses will... | | | *X* | |
| 1c. The conversion of **naturally regenerating** forests of other fast growing species to other land uses will... | | *X* | | |
| 2a. The conversion of **planted** forests of poplar to other land uses will... | | | *X* | |
| 2b. The conversion of **planted** forests of willow to other land uses will... | | | *X* | |
| 2c. The conversion of **planted** forests of other fast growing species to other land uses will... | | | *X* | |
| 3a. The conversion of **planted** forests of poplar to other species will... | | | *X* | |
| 3b. The conversion of **planted** forests of willow to other species will... | | | | *X* |
| 4a. The area of poplars for bioenergy plantations will ..... | *X* | | | |
| 4b. The area of willows for bioenergy plantations will ..... | | *X* | | |
| 4c. The area of other fast growing trees for bioenergy plantations will ..... | | | | *X* |
| 5a. Government investments in poplars will ... | | | | *X* |
| 5b. Government investments in willows will ... | | | | *X* |
| 5c. Government investments in other fast growing trees will ... | | | | *X* |
| 6a. Private sector investments in poplars will ... | *X* | | | |
| 6b. Private sector investments in willows will ... | | *X* | | |

| | | | | |
|---|---|---|---|---|
| 6c. Private sector investments in other fast growing trees will ... | *X* | | | |
| 7a. The significance of poplars for **productive** purposes will ... | *X* | | | |
| 7b. The significance of willows for **productive** purposes will ... | | *X* | | |
| 7c. The significance of other fast-growing species for **productive** purposes will ... | *X* | | | |
| 8a. The significance of poplars for **environmental protection** purposes will ... | | | *X* | |
| 8b. The significance of willows for **environmental protection** purposes will ... | | | *X* | |
| 8c. The significance of other fast-growing species for **environmental protection** purposes will ... | | | *X* | |
| 9a. The rejection by environmental groups of poplars will... | | | *X* | |
| 9b. The rejection by environmental groups of willows will... | | | *X* | |
| 9c. The rejection by environmental groups of other fast growing trees will... | | | *X* | |
| 10a. The **acceptance** by the general public of poplars as important natural resources will..... | | | | *X* |
| 10b. The **acceptance** by the general public of willows as important natural resources will..... | | | | *X* |
| 10c. The **acceptance** by the general public of other fast growing trees as important natural resources will..... | | | | *X* |
| 11a. The introduction of poplars in **agroforestry systems** will..... | | | | *X* |
| 11b. The introduction of willows in **agroforestry systems** will..... | | | | *X* |
| 11c. The introduction of other fast growing trees in **agroforestry systems** will..... | | | | *X* |

---END OF QUESTIONNAIRE---