

# Management of mixed and pure planted forests: Stock-taking of science and practice

**Workshop organized by the Food and Agriculture Organization (FAO), TreeDivNet, and the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC)**

29-30 September 2022  
Rome, FAO headquarters

## Context

Planted forests are an accepted component of international initiatives to restore degraded lands and improve the resilience of family farmers' livelihoods. They also have a role to play in the mitigation of climate warming and in the conservation of biodiversity. Comprising about 7% of forest cover in 2020, planted forest's total area continues to expand. Planted forests include plantations, a particular category of planted forests characterized by a limited number of species, even-aged structure, and intensive management<sup>1</sup>. Plantations comprise about 3 percent of the global forest area<sup>2</sup>. In the past, their expansion was driven primarily by the management objective of efficient production of wood and fiber. In some cases, plantations were also established for protective purposes, for example, the rapid stabilization of soils for site rehabilitation after catastrophic disturbance. These two classes of management objectives have been met largely efficiently using monocultures. In the last three decades, plantation forestry has become key to meeting the world's needs for wood. As the role of sustainable wood in meeting environmental and socioeconomic objectives is increasingly recognized, demand for sustainable wood is likely to expand and be met through forest plantations.

The urgent need to restore degraded land globally also demands consideration of the role of plantations. Together with the more diversified approach to planted forests, plantation models can offer attractive options for landholders, including smallholders to invest in forestry. Mixed-species tree plantations and their uses in the tropics were reviewed alongside monoculture plantations by FAO in 1992. Since that time, there has been a large body of scientific knowledge and practical experiences generated on mixed-species plantations and planted forests.

Aiming to support the advancement of planted forests with a focus on climate change, land restoration, and livelihoods needs including through plantations, FAO is organizing a workshop in collaboration with the TreeDivNet, and the members of the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC) hosted by FAO. The TreeDivNet is a large network of biodiversity experiments worldwide coordinating 29 experiments on a total surface of 859 ha. The network provides a platform for multidisciplinary and multifunctional research in specific studies as well as synthesis studies across the globe.

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<sup>1</sup> <http://www.fao.org/3/I8661EN/i8661en.pdf>

<sup>2</sup> <http://www.fao.org/3/CA8753EN/CA8753EN.pdf>

## Objective of the meeting

The general objective of the meeting is to review the state of the art in the management of mixed and pure planted forests. It should contribute to clarifying aspects related to science, sharing good practices, and discussing effective ways to take them to scale in the context of the different management objectives.

In particular, the workshop will examine:

1. Within mixed-species systems of planted forest management:
  - a. What are the most important lessons learned from scientific studies;
  - b. What systems are already used at scale and for what management objective;
  - c. What systems show promise and are ready for piloting; and
  - d. What gaps either in forest management science or awareness persist and need to be addressed.
2. The comparative advantages and disadvantages of monocultures, including those of fast-growing trees grown in short rotation, and mixed-species plantations for different types of management objectives.

## Participants and organizers

The workshop will be attended by the TreeDivNet members, who are going to share the results of their experiments, interested members of the IPC, and representatives of the countries, international organizations, and scientific organizations and networks.

## Programme

### DAY 1: 29-09-2022

Time	Sessions	Speaker
<b>OPENING SESSION</b>		
14:00	Opening remarks	Director, Forestry Division, FAO
14:10	Welcome addresses and context	Kris Verheyen, TreeDivNet Martin Weih, IPC
<b>SESSION 1: Setting the scene (session facilitated by Jürgen Bauhus)</b>		
14:30	Objective, agenda and expected outcomes of the workshop	Thaïs Linhares-Juvenal, IPC Secretary (FAO)
14:40	What are the current and foreseen extent and composition of planted forests and other land with tree cover globally? (Global Forest Resources assessment 2020)	Anssi Pekkarinen, FAO
15:10	Q&A and discussion	Facilitated by Jürgen Bauhus, University of Freiburg
15:30	<i>Coffee break</i>	
<b>SESSION 2: Mixed-species systems (session facilitated by Kris Verheyen)</b>		
15:45	Review of mixed forest plantations experiments	Leen Depauw & Emiel De Lombaerde, University of Ghent
16:15	When does increasing diversity in planted forest make sense for the provision of ecosystem services? Evidence from research and from practice in the field.	Jürgen Bauhus, University of Freiburg
16:45	Q&A and discussion	Facilitated by Kris Verheyen, TreeDivNet
16:50	Wrap up of the day	Martin Weih, IPC

### DAY 2: 30-09-2022

Time	Sessions	Speaker
08:30	Introduction to Day 2	
<b>SESSION 3: Comparative advantages and disadvantages of monoculture plantations (session facilitated by Martin Weih)</b>		
08:40	Are mixed planted forests more resistant and resilient in the face of climate change and the global spread of pests and diseases?	Hervé Jactel, INRAE
09:10	Reconciling objectives of intensively managed planted forests and ecosystem service provision in the appropriate landscape context.	Luis Neves Silva, WWF International
09:40	Management and operational considerations of mixtures and pure planted forest in commercial plantations	Leonardo Goncalves, University of Sao Paulo
10:10	Q&A and discussion	

Time	Sessions	Speaker
10:30	<i>Coffee break</i>	
<b>SESSION 4: Investment and socio economic considerations</b> ( <i>session facilitated by Marco Boscolo</i> )		
10:45	Economics of mixed vs. pure planted forests: an enterprise perspective	Verena Griess, ETH Zürich
11:15	Investing in planted forests for ecological restoration, rehabilitation, and non-timber ecosystem services: what utility in diversity?	Paul Speed, New Forests
11:45	Social costs and benefits of mixed and pure planted forests	Liz Felker, The Forest Dialogue
12:15	Q&A and discussion	
12:30	<i>Lunch break</i>	
<b>SESSION 5: Countries' perspectives</b> ( <i>session facilitated by Thaïs Linhares-Juvenal</i> )		
13:30	Individual country presentations (5 presentations of 15 minutes each)	
14:45	Country panel discussion	
15:45	Q&A	
16:00	<i>Coffee break</i>	
<b>SESSION 6: Way forward</b> ( <i>session facilitated by Faustine Zoveda, FAO, and Rita Silva, University of Freiburg</i> )		
16:15	Facilitated discussion: <ul style="list-style-type: none"> <li>• Review and validation of draft paper outline</li> <li>• Review and validation of draft roadmap</li> <li>• Recap of next steps</li> </ul>	
16:45	Conclusion and closure of the workshop	Director, Forestry Division, FAO