

BRITISH STANDARD

Nursery stock

Part 4: Specification for forest trees, poplars and willows

ICS 65.020.20



NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2007

ISBN 978 0 580 50853 0

The following BSI references relate to the work on this standard:

Committee reference AW/1

Draft for comment 02/704738 DC

Publication history

First published April 1966

First revision August 1984

Second revision June 2007

Amendments issued since publication

Amd. no.	Date	Text affected
-----------------	-------------	----------------------

Contents

Foreword *iii*

1	Scope	<i>1</i>
2	Normative reference	<i>1</i>
3	Terms and definitions	<i>1</i>
4	Plant description	<i>5</i>
5	Plant condition	<i>10</i>
6	Supply to planters	<i>13</i>

Annexes

Annex A (informative) Species lists	<i>15</i>
Annex B (informative) Brief notes on the forest reproductive material and plant health legislation	<i>22</i>

Bibliography *24*

List of tables

Table 1 – Plant age and type or condition of typical forest nursery stock	<i>6</i>
Table 2 – Height classes and ranges for forestry seedlings and transplants other than poplars and willows	<i>6</i>
Table 3 – Species sturdiness for bare-rooted forest nursery stock, based on minimum root collar diameter (rcd) and height	<i>7</i>
Table 4 – Species sturdiness for cell-grown forest nursery stock, based on minimum root collar diameter (rcd) and height	<i>8</i>
Table 5 – Heights and diameters for rooted and unrooted poplar and willow sets other than cricket-bat willow	<i>10</i>
Table 6 – Heights and diameters for unrooted cricket-bat willow sets	<i>11</i>
Table 7 – Heights and diameters for rooted plants of cricket-bat willow: two-year-old plants (C/2+0)	<i>11</i>
Table 8 – Root membrane permeability (rmp) for well-rooted forestry planting stock	<i>12</i>
Table A.1 – Species list: conifers	<i>16</i>
Table A.2 – Species list: broadleaves other than poplars and willows	<i>17</i>
Table A.3 – List of poplar species	<i>19</i>
Table A.4 – List of willow species	<i>20</i>

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 25 and a back cover.

Foreword

Publishing information

This part of BS 3936 is published by BSI and came into effect on 29 June 2007. It was prepared by Technical Committee AW/1, *Nursery stock*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 3936 supersedes BS 3936-4:1984 and BS 3936-5:1985, which are withdrawn.

Information about this document

BS 3936 is published in eight parts:

- Part 1: Specification for trees and shrubs;
- Part 2: Specification for roses;
- Part 3: Specification for fruit plants;
- Part 4: Specification for forest trees, poplars and willows;
- Part 7: Specification for bedding plants;
- Part 9: Specification for bulbs, corms and tubers;
- Part 10: Specification for ground cover plants;
- Part 11: Specification for container-grown culinary herbs.

BS 3936-4 was originally published at the request of the Horticultural Trades Association and the National Farmers Union. This revision has been prepared following a periodic review.

The market for wood from fast-grown poplars available when BS 3936-5 was first prepared has largely disappeared. Poplar and willow varieties are currently planted for amenity and biomass. Poplars are also included in the provisions of the Forest Reproductive Material Regulations [1]. As the former parts 4 and 5 had increasingly much in common, they are now combined.

The species listed in the tables in Annex A include all those named in recent publications describing forestry and woodland planting schemes. Details of sources are given in Annex A.

Attention is drawn to the Forest Reproductive Material Regulations 2002 [1] and the Plant Health (Great Britain) Order 1993 [2]. See Annex B.

This document conforms closely to standards set by the *National Plant Specification* published by the Horticultural Trades Association [3] and guidance from the Joint Council for Landscape Industries [4] and is consistent with best contemporary forestry nursery practice.

Plants marketed and supplied to this specification as forest nursery stock meet the requirements for Forestry Commission-funded grant schemes and, if suited to the site, meet the requirements of the UK Forestry Standard [5]¹⁾.

¹⁾ Advice on current regulations and woodland grant schemes can be obtained from the Forestry Commission, 231 Corstorphine Road, Edinburgh, EH12 7AT. www.forestry.gov.uk

It is a characteristic of crop husbandry that periodically, pests or diseases unexpectedly become more virulent than previously, and invalidate earlier recommendations based on many years of experience and practice. Regrettably, varieties of willow and poplar grown widely for biomass have recently suffered seriously from attacks of rusts and other fungal diseases. As a consequence, all lists of willow and poplar cultivars recommended as forest nursery stock are being revised. As it is uncertain when definitive lists will finally be available, recommended willow and poplar cultivar lists are not included in this edition of this British Standard.

Many of the tree species and varieties listed in Annex A are also grown onto larger sizes for amenity planting. BS 3936-1 specifies requirements for such stock.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This part of BS 3936 specifies requirements for forest nursery stock of a size suitable for planting or replanting of woodlands, woodland landscapes and land required for other purposes involving trees such as production of Christmas trees and production of biomass.

It also specifies requirements for planting stock of poplars and willows.

BS 3936-4 is relevant to the supply of the young trees and shrubs for planting in woodland that falls within the scope of the Forest Reproductive Material (FRM) Regulations [1]. It is not limited to such uses and can be applied to similar plants supplied for any woodland or landscape project.

It includes specifications for plant description, plant dimensions, health and condition, labelling, and packaging and storage, both for field-grown and for cell-grown plants.

Requirements specified for plants being grown for sale or for transfer through market processes include: naming their origin and provenance or variety and/or cultivar; age and the cultural system under which they are raised; dimensions, including height or length, diameter at a specified point or in relation to a given height; condition (health); and care when supplying stock to the planter.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this British Standard.

ALDHOUS, J.R. and MASON, W.L., eds., *Forest Nursery Practice*, Bulletin 111. Edinburgh: Forestry Commission, 1994.

3 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

3.1 forest nursery stock

plants of tree and shrub species and varieties, marketed as suitable for any planting that results in the creation, improvement, renewal or other development of woodland, forest or wooded amenity landscape or conservation area

3.2 naming plants

3.2.1 commercial name

current botanical genus, species and where necessary, sub-species, variety or cultivar names of plants

NOTE These names are used in current statutory regulations and in commerce. They are shortened forms of the full botanical name. See Table A.1, Table A.2, Table A.3 and Table A.4 for names in current commerce.

3.2.2 botanical name

name consisting of genus and species, sub-species, variety, cultivar, clone or hybrid name where appropriate, and the authority who assigned the name

3.2.3 common name

name used in plants lists and current literature as a non-definitive aid to plant identity

3.2.4 cultivar

internationally agreed name for a cultivated variety

NOTE 1 The complete name of a cultivar consists of the botanical name of its taxonomic group (genus and possibly species), followed by the cultivar "epithet", e.g. Populus nigra "Italica".

NOTE 2 The cultivar is the basic taxon for cultivated plants [6].

NOTE 3 Many cultivar names are registered. The International Poplar Commission, for example, acts as international registration authority for all Populus L. cultivars [7]. See www.fao.org/forestry

3.2.5 clone

genetically identical group of plants originating from a single plant by vegetative propagation

NOTE Clones can be given cultivar names.

3.2.6 hybrid

plant that results from the cross-fertilization of two different species, sub-species or varieties

3.2.7 origin of seed

location of indigenous stand from which seed was collected, or to which a previous generation of seed collection and plantation can be traced

NOTE A stand of trees is indigenous if it can reasonably be considered to have descended from trees which occurred naturally in the same locality.

3.2.8 origin of cuttings

for forestry species propagated vegetatively and not assigned a cultivar or varietal name, the location from which indigenous propagation material was first taken or to which a previous generation of cuttings can be traced

NOTE See B.3.3.

3.2.9 provenance of seed

geographical location where seed was collected

3.3 form and treatment of nursery plants

3.3.1 seedling

plant grown from seed in open ground or cells, and not transplanted since sowing or pricking out

NOTE See Table 1.

3.3.2 transplant

plant which has been transplanted one or more times into open ground

NOTE 1 This term usually applies to bare-rooted stock transplanted at the end of the first or second growing season but might include four-year-old transplants (see Table 1).

NOTE 2 Cell-grown trees may also occasionally be transplanted into open ground.

3.3.3 undercut

<verb> sever roots of seedlings at a regulated depth with a sharp horizontal blade drawn through the seedbed

3.3.4 cutting

<noun> short length of stem or root selected from a plant for its potential to develop new shoots and roots when inserted into soil or other rooting medium

3.3.5 rooted cutting

plant grown from a cutting and bearing one or more years' roots and shoots

3.3.6 root collar

location where the base of the aerial part of a plant meets the top of the root system

3.3.7 set

unrooted stem or branch, usually more than 1 m long and used for field planting

NOTE This definition applies only to poplars and willows.

3.3.8 stool

rootstock maintained to produce cuttings and/or sets

NOTE This definition applies to poplars and willows and other coppicing species.

3.3.9 stump

<verb> cut back the stem of a plant or stool to a point slightly above the root collar

NOTE This definition applies mostly to poplars and willows.

3.4 cultural system**3.4.1 field-grown**

grown in open nursery ground, as seedlings, undercut plants or transplants

NOTE Field-grown is also known as open grown.

3.4.2 cell

structure filled with growing medium into which seeds are placed individually or individual unrooted cuttings inserted

NOTE The seeds may be dormant, or partly or fully pre-germinated, including pricked out newly germinated seedlings; cell walls may have vertical ridges or grooves to guide root growth, or may be biodegradable; cells may be arranged in multi-cell trays or other modular structures.

3.4.3 cell-grown plant

plant grown in a cell under partially or fully controlled temperature and moisture regimes

NOTE Roots may be air-pruned.

3.4.4 container

structure filled with growing medium into which an established rooted plant is transplanted

NOTE The plant may be bare-rooted or have been raised in a smaller container or cell.

3.4.5 container-grown plant

plant grown in a container under partially or fully controlled moisture and temperature regimes until of marketable size or moved to a larger container

NOTE Such plants are normally considered too large and expensive for use as forestry planting stock.

3.5 plant dimensions

3.5.1 height of rooted plants

distance from the root collar to the tip of the bud of the leading shoot

NOTE 1 Heights are recorded in centimetres.

NOTE 2 Where plants are sold in bulk and not individually, the height of the bulk supply is expressed as a range defining the maximum and minimum height of the lot of plants under consideration. See Table 2.

3.5.2 height of unrooted sets

distance from the base of the set to its tip

3.5.3 stem diameter

<general> point of measurement depending on the plant material being measured

NOTE Stem diameters are measured in millimetres.

3.5.4 stem diameter

<rooted poplars and willows> diameter of the main stem measured at 0.5 m or 1.0 m above the root collar

3.5.5 stem diameter

<unrooted poplar and willow cuttings> diameter at the top of the cutting

3.5.6 stem diameter

<poplar and willow sets> diameter of set at mid length

3.5.7 root collar diameter (rcd)

diameter of the main stem at the root collar

3.5.8 sturdiness

<general> relationship between root collar diameter, measured in millimetres, and stem height, measured in centimetres

3.5.9 sturdiness

<bare-root plants> minimum root collar diameter for a given height range