



**Disease-resistant elms**  
*Butterfly Conservation* trials report 2016

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**Butterfly  
Conservation**

Saving butterflies, moths and their habitats

# Disease-resistant elms

*Butterfly Conservation* trials report, 2016

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## 1. Abstract

The Hampshire & Isle of Wight Branch of *Butterfly Conservation* (BC) initiated trials of elm cultivars and species resistant to Dutch Elm Disease (DED) in 2000. The trials are in fulfilment of Objective 5 for the White-letter Hairstreak (WLH) in BC's *South Central Regional Action Plan*: to evaluate their potential as host plants for the butterfly, now a DEFRA UK Biodiversity Action Plan 'Priority' species (no. 945) on account of its increasing scarcity as a consequence of the DED pandemic. This report, originally published in 2010, has been substantially revised in the light of the 'Princeton' fiasco. 'Princeton', an American Elm cultivar, was widely promoted in the UK without having been tested for resistance to DED in Europe. The loss of many 'Princeton' to DED, notably at Highgrove, has prompted the relegation of other American cultivars until such time as their resistance has been proven here.

In 2015, the White-letter Hairstreak was found breeding on the DED-resistant cultivars LUTECE and 'Sapporo Autumn Gold'. The discovery of the WLH on LUTECE is particularly significant as the tree has a very different periodicity from the reputedly favourite native host, Wych elm, suggesting the insect is possessed of a considerable adaptability which could see it breeding on all the high-resistance cultivars featured in this report.

## 2. Introduction

The elm trials are located at four sites in southern Hampshire. The sites feature very diverse ground conditions, from arid rendzinas atop an outlier of the South Downs to waterlogged London Clays less than 1m A S L along the shores of Portsmouth Harbour. This report focusses on eight cultivars with a scientifically proven '5 out of 5' resistance to DED available in Europe, and the anomalous species *Ulmus laevis* which, whilst devoid of any innate resistance, is rarely infected owing to a triterpene in its bark rendering it unpalatable to the vector *Scolytus* bark beetles. The high DED-resistance of the eight cultivars featured in this report has been determined in Europe by the Institut Nationale pour la Recherche Agronomique (INRA) in France, the Istituto per la Protezione delle Piante (IPP) in Italy, the Universidad Politecnica Madrid, and Eisele GmbH in Germany. Testing in all instances was by inoculation with unnaturally high doses (inoculum:  $10^6$  spores / ml) of the DED pathogen *Ophiostoma novo-ulmi* subsp. *americana*. The BC trials have therefore focussed on the growth and appearance of the trees, together with their tolerance of environmental stresses such as exposure, drought, and waterlogging.

### 3a. List of highly DED-resistant trees included in the trials

CULTIVAR	ORIGIN
'Ademuz'	Universidad Politecnica Madrid, Spain
'Nanguen' = LUTÈCE *	Dorschkamp, Wageningen, Netherlands
'New Horizon'	WARF, Wisconsin, USA
'Plinio'	IPP, Florence, Italy
'San Zanobi'	IPP, Florence, Italy
'Sapporo Autumn Gold'	WARF, Wisconsin, USA
'Wanoux' = VADA	Dorschkamp, Wageningen, Netherlands
'FL 493'	IPP, Florence, Italy
EXOTIC SPECIES	
<i>Ulmus laevis</i>	Val d'Allier, France, wild collected.

### 3.b Other elms included in the trials

Below is a list of other cultivars and exotic species planted. These are not described here on account of their resistance to DED or other diseases in Europe subsequently being found to be either sub-standard or, as with most of the American cultivars, simply unknown. Despite its high DED resistance, 'Columella' has also been relegated owing to graft incompatibility with its Wych Elm rootstocks, occasioning numerous collapses across the Netherlands as the trees mature.

CULTIVAR	ORIGIN
'Arno'	IPP, Florence, Italy
'Columella'	Dorschkamp, Wageningen, Netherlands
'Dodoens'	Dorschkamp, Wageningen, Netherlands
'Fiorente'	IPP, Florence, Italy
'Lewis & Clark' = PRAIRIE EXPEDITION	North Dakota State University, USA
'Morfeo'	IPP, Florence, Italy
'Morton' = ACCOLADE	Morton Arboretum, Illinois, USA
'Morton Glossy' = TRIUMPH	Morton Arboretum, Illinois, USA
'Morton Stalwart' = COMMENDATION	Morton Arboretum, Illinois, USA
'Patriot'	USDA National Arboretum, USA
'Princeton'	Princeton Nursery, Princeton, Mass. USA
'Prospector'	USDA National Arboretum, USA
'Valley Forge'	USDA National Arboretum, USA
EXOTIC SPECIES	ORIGIN
<i>Ulmus davidiana</i>	Liaoning Province, China
<i>Ulmus davidiana</i> var. <i>japonica</i>	Sapporo, Japan
<i>Ulmus laciniata</i>	Sapporo, Japan
<i>Ulmus microcarpa</i>	Chayu region, Tibet

\*NB Names in capitals are the selling names used in commerce, as opposed to the registered cultivar names which are always written within single inverted commas. Unlike cultivar names, selling names may vary from country to country.

#### 4. Performance

Only two of the trees died in the trials, for reasons unknown, but two cultivars exhibited poor stability and required stake support for several years, while several others grew very slowly and / or exhibited poor structure. Most of the elms are hybrid cultivars, with Asiatic ancestors *U. wallichiana* or *U. pumila*, from whom they have inherited their anti-fungal genes. However, environmental conditions in the Far East are, with few exceptions, very different from those experienced in southern England. A critical aspect of the trials was therefore the assessment of the trees' adaptation to a temperate maritime climate. Many of the cultivars also differ in appearance from the European species, often being significantly smaller with uncharacteristic foliage. Ergo: some would not, for all their virtues, look at home in the wider English countryside, and better retained as ornamentals in the urban environment.

Elm	$\Delta$ d.b.h. cm	Elm	$\Delta$ ht. cm
<i>Ulmus laevis</i>	3.9	'San Zanobi'	103
'Nanguen' = LUTÈCE	2.0	'Nanguen' = LUTÈCE	87
'San Zanobi'	1.6	<i>Ulmus laevis</i>	80
'Plinio'	1.3	'Plinio'	60
'New Horizon'	1.0	'Sapporo A G'	53
'Wanoux' = VADA	0.9	'Wanoux' = VADA	53
'Sapporo A G'	0.7	'New Horizon'	13

#### Average annual increments in d.b.h\*. and height at Great Fontley, Fareham

\*d.b.h. = diameter at breast height. NB 'Ademuz' & FL493 excluded: too young.

#### 5. The butterfly

The White-letter Hairstreak *Satyrrium w-album* is a monophagic species entirely reliant on Elm. Larvae have been very occasionally found feeding on oak and bird cherry in continental Europe, but these occurrences are regarded as random. Moreover, it is *sexually mature* elm which is preferred as the larvae hatch in mid-March, a number of weeks before the leaves flush, and immediately feed on the elm flowers before progressing to the seeds. (Fig. 1). However, recent research in the Low Countries has discovered that larvae hatching on immature, flowerless, trees are able to survive by remaining dormant for up to six weeks until the leaves flush, provided climatic conditions allow them to rehydrate on hatching. This phenomenon would explain the occasional sightings of the butterfly on English elm suckers.

The White-letter Hairstreak is also endemic to much of the Far East, including Siberia and Japan, where it thrives on several of the elms used in hybridization or planted in their own right in Europe and the USA; the butterfly is not found in North America however.

The WLH has yet to colonize the elms in the BC trials' plantations owing to extinctions in their neighbourhoods soon after planting. However, the butterfly has been found breeding on the cultivar 'Nanguen' (selling name: LUTÈCE) planted on the Isle of Wight in 2003.

The French natural history unit VarWild has produced a 14 minute film of the lifecycle of the butterfly, with close-up photography: <https://www.youtube.com/watch?v=vdDNGF2HDr0>



**Fig. 1 White-letter Hairstreak larva on elm flower.**

**Photo: Peter Eeles**



**Fig. 2 LUTECE elm, Newport, IoW, hosting the WLH in 2015**

**Photo: Caroline Dudley**

## 6. The future

The propagation by the Escuela de Montes, Universidad Politecnica Madrid, of native Field Elms *Ulmus minor* with a very high resistance to Dutch elm disease must represent the most significant development in the 88-year history of European elm breeding. The trees are awaiting patenting by the Spanish government, whereupon they will become commercially available. Able to sucker readily from roots, they should make excellent hedgerow trees.

Meanwhile, the release without patent of the Italian clone FL493, the second-most DED-resistant cultivar ever raised by the Institute of Plant Protection, Florence, presents the opportunity to freely propagate and market a resistant elm within the United Kingdom. The tree has a complex ancestry, including the English Huntingdon Elm, whose foliage it closely resembles; it should be commercially available in the UK by 2018.

The recent discovery of the Elm Yellows *Phloem necrosis* phytoplasma across France remains a cause for concern, as many hybrid cultivars with exotic species such as *U. wallichiana* in their ancestries have been found to be particularly susceptible, as are some forms of Field Elm. As a precaution against its introduction to the UK, and against mutations of Dutch elm disease, the planting of a range of cultivars in any one scheme is strongly recommended.

The importation of all trees from Europe may well become more strictly controlled, even subjected to quarantine, in recognition of the threat from alien phytophtherae, 17 of which have been accidentally introduced to the UK in the past 30 years. Ergo, the propagation of home-grown elms is to be actively encouraged.



**Fig. 3 Elm yellows**      **Photo: Eric Collin**

## 7. The trees described

The following pages offer illustrated descriptions of the better performing, most disease-resistant cultivars raised on both sides of the Atlantic, and the species *Ulmus laevis*. A performance checklist is offered on each page:

+++ = Good, ++ = Fair, + = Poor.

## 'Ademuz' etc

*Ulmus minor* cultivars from Spain

Origin: Universidad Politecnica Madrid, release 2016?



Puerto de Herro, U P Madrid



Universidad Politecnica Madrid

### DESCRIPTION

'Ademuz' is one of a number of highly DED-resistant Field Elm *Ulmus minor* clones under assessment by the Escuela de Montes, Universidad Politecnica Madrid, as potential forestry trees. The branches devoid of corky tissue, the leaves, on 5 mm petioles, are ovate, typically oblique at the base and acuminate at the apex, the average length and width 5.5 × 3.5 cm, the margins doubly serrate. The tree develops a balanced, open structure, and was considered the most attractive of the Madrid clones, scoring 4.5 out of 5. Foliar density relative to 'Sapporo Autumn Gold' is described as 'medium'. 'Ademuz' and its siblings readily sucker from roots to form clumps. 'Ademuz' and the other clones are scheduled to be released to commerce in 2018.

### PERFORMANCE

- +++ Stability (resistance to wind rock)
- +++ Resistance to exposure (leaf scorch, branch breakage)
- +++ Resemblance to native elm
  - + Suitability for street planting
  - ? Rate of growth (rapid in Spain, but no data available from UK specimens yet)
- +++ Tolerance of waterlogging (>3 months' inundation over winter)
- +++ Tolerance of drought

**Wikipedia:** [http://en.wikipedia.org/wiki/Ulmus\\_%27Ademuz%27](http://en.wikipedia.org/wiki/Ulmus_%27Ademuz%27)

**ResistantElms:** <http://www.resistantelms.co.uk/ulmus-minor-ademuz/>

## 'Nanguen' = LUTÈCE

Hybrid cultivar: ('Plantyn' × (*U. minor* × *U. minor*)) × ('Bea Schwarz' × 'Bea Schwarz' self.)

Origin: Dorschkamp, Netherlands; released 2002 by INRA, France (patent holders).



### DESCRIPTION

The stem of LUTÈCE typically forks at a height of 1 - 2 m, with < 5 branches steeply ascending to form an open crown. The leaves are < 11 cm long × 10 cm wide, similar in shape to those of the Field Elm *U. minor*, but with a very rough upper surface and coarsely serrated margins. The leaves are very late to flush, rarely before mid May, a trait inherited from its Himalayan Elm *U. wallichiana* ancestor. In adolescence, the tree requires prolonged staking before it is able to freestand at about age 6. A specimen planted 2003 at Newport, IoW, became the first known DED-resistant cultivar to host the WLH in the UK. However, in France, young LUTÈCE plants have proven susceptible to the Elm Yellows phytoplasma, a pathogen as yet unknown in the UK.

### PERFORMANCE

- ++ Stability (resistance to wind rock)
- +++ Resistance to exposure (leaf scorch, branch breakage)
- +++ Resemblance to native elm
  - + Suitability for street planting
- +++ Rate of growth (height increase: 87 cm, d.b.h. increase: 2.0 cm p. a.)
- +++ Tolerance of waterlogging (>3 months' inundation over winter)
- +++ Tolerance of drought

**Wikipedia:** [http://en.wikipedia.org/wiki/Ulmus\\_%27Nanguen%27](http://en.wikipedia.org/wiki/Ulmus_%27Nanguen%27)

**ResistantElms:** <http://www.resistantelms.co.uk/elms/ulmus-lutece/>



## 'New Horizon'

Hybrid cultivar: *Ulmus davidiana* var. *japonica* × *U. pumila*

Origin: Wisconsin Alumni Research Foundation (WARF); released 1995



### DESCRIPTION

The tree initially has a compact, pyramidal form, with comparatively dense foliage comprising glabrous, dark-green, elliptical leaves < 12 cm long by 7 cm broad, occasionally without the asymmetric bases typical of the genus. Flowering, and consequent fruiting, is meagre, a trait inherited from its Japanese elm 'mother'. The tree increases in height only slowly, while its trunk thickens comparatively quickly. Like its Siberian Elm parent, the crown of 'New Horizon' can suffer <25 % natural twig dieback over winter, seriously disfiguring the tree. Moreover, 'NH' is the most sensitive of all the trees on test to ground conditions, growing poorly on all but fertile and free draining soil, although none perished anywhere.

### PERFORMANCE

- +++ Stability (resistance to wind rock)
  - + Resistance to exposure (leaf scorch, branch breakage)
  - + Resemblance to native elm
- +++ Suitability for street planting
  - + Rate of growth (height increase: 13 cm, d.b.h. increase: 1.0 cm p. a.)
  - ++ Tolerance of waterlogging (>3 months' inundation over winter)
- +++ Tolerance of drought

**Wikipedia:** [http://en.wikipedia.org/wiki/Ulmus\\_%27New\\_Horizon%27](http://en.wikipedia.org/wiki/Ulmus_%27New_Horizon%27)

**ResistantElms:** <http://www.resistantelms.co.uk/elms/the-best-of-the-rest/>

## 'Plinio'

Hybrid cultivar: 'Plantyn' × *U. pumila*

Origin: Istituto per la Protezione delle Piante, Italy; released 2004



### DESCRIPTION

'Plinio' is a Jekyll and Hyde character, forming an ungainly, unsteady tree with sparse, splaying branches and an often inadequate root system where grown on fertile soils (photo, left), whereas on thin, arid rendzinas (chalk soils, photo right) more substantial roots are stimulated, whilst exposure encourages a sturdier, denser, tree. It has proven the most successful cultivar trialled on the Ports Down (a South Downs outlier) site. The leaves are < 6.5 cm long by 3 cm broad and glabrous on both sides, but devoid of autumn colour. The tree is one of the most DED-resistant ever raised in the Italian elm breeding programme. 'Plinio' is only available by mail order from Umbraflor, Spello, Italy; smallest size: 7-litre pot, min. order value €500.

### PERFORMANCE

- ++(+)
  - +++
  - ++
  - +
  - ++
  - ++
  - +++
- Stability (resistance to wind rock)  
Resistance to exposure (leaf scorch, branch breakage)  
Resemblance to native elm  
+ Suitability for street planting  
++ Rate of growth (height increase: 60 cm, d.b.h. increase: 1.3 cm p. a.)  
++ Tolerance of waterlogging (>3 months' inundation over winter)  
+++ Tolerance of drought

Wikipedia: [http://en.wikipedia.org/wiki/Ulmus\\_%27Plinio%27](http://en.wikipedia.org/wiki/Ulmus_%27Plinio%27)

ResistantElms: <http://www.resistantelms.co.uk/plinio/>

## 'San Zanobi'

Hybrid cultivar: 'Plantyn' × *U. pumila*

Origin: Istituto per la Protezione delle Piante, Italy; released 2003



### DESCRIPTION

'San Zanobi' is a moderately fastigiate tree, the branches gradually arching to become pendulous with age. Lack of stability resulting from uneven root development was initially a concern, but has been overcome by better propagation practice. Nevertheless, care should still be taken to arrange the roots at planting. The glabrous, bright green leaves are < 15 cm long × < 6 cm broad. Like its compatriot 'Plinio', the tree lacks striking autumn colours. 'San Zanobi' begins flowering in its sixth year. Widely planted as a street tree in Italy, notably in and around the Villa Medici in Rome. 'San Zanobi' is only available by mail order from Umbraflor, Spello, Italy; smallest size: 7-litre pot, min. order value €500.

### PERFORMANCE

- +++ Stability (resistance to wind rock)
- +++ Resistance to exposure (leaf scorch, branch breakage)
- ++ Resemblance to native elm
- +++ Suitability for street planting
- +++ Rate of growth (height increase: 103 cm, d.b.h. increase: 1.6 cm p. a.)
  - + Tolerance of waterlogging (>3 months' inundation over winter)
- +++ Tolerance of drought

**Wikipedia:** [http://en.wikipedia.org/wiki/Ulmus\\_%27San\\_Zanobi%27](http://en.wikipedia.org/wiki/Ulmus_%27San_Zanobi%27)

**ResistantElms:** <http://www.resistantelms.co.uk/elms/the-best-of-the-rest/>

## 'Sapporo Autumn Gold'

Hybrid cultivar: *Ulmus davidiana* var. *japonica* × *U. pumila*

Origin: Wisconsin Alumni Research Foundation (WARF); released 1975



### DESCRIPTION

'Sapporo Autumn Gold' forms a densely foliated crown similar to that of the Field Elm *U. minor*. The leaves are narrowly-elliptical, < 9 cm long by < 4.5 cm wide; as the name implies, the leaves turn pale yellow in autumn. Flowering usually begins when the tree is aged six years. Although the oldest cultivar on trial, it remains one of the most resistant to DED, exhibiting just 2.8% defoliation and 1.2% dieback after inoculation in Italy, and has become the yardstick by which new cultivars are judged. The tree is known to host the White-letter Hair-streak in the wild in the UK. However, specimens planted at Christchurch in 1985 have succumbed to Dryad's Saddle fungus, while other mature trees have suffered branch breakage at exposed sites.

### PERFORMANCE

- ++ Stability (resistance to wind rock)
- + Resistance to exposure (leaf scorch, branch breakage)
- +++ Resemblance to native elm
- ++ Suitability for street planting
- ++ Rate of growth (height increase: 53 cm, d.b.h. increase: 0.7 cm p. a.)
  - + Tolerance of waterlogging (>3 months' inundation over winter)
- +++ Tolerance of drought

**Wikipedia:** [http://en.wikipedia.org/wiki/Ulmus\\_%27Sapporo\\_Autumn\\_Gold%27](http://en.wikipedia.org/wiki/Ulmus_%27Sapporo_Autumn_Gold%27)

**ResistantElms:** <http://www.resistantelms.co.uk/sapporo-autumn-gold/>

## ***Ulmus laevis*** – White Elm

*Ulmus laevis* grown from seed collected in France

Origin: Loire Valley, France.



### **DESCRIPTION**

*Ulmus laevis* is an anomaly, a fast-growing species with little or no resistance to DED, but which nevertheless survives to great age by dint of Alnulin, a triterpene in the bark which deters the elm bark beetles from feeding on, and thus infecting, it. A unique, vast, surface root system enables it to survive anoxic ground conditions during prolonged (>100-day) winter floods. It has little value as timber or firewood, but makes an important amenity tree and host of the White-letter Hairstreak. The tree is most easily identified in spring by flowers and later seeds on 25-30 mm-long stalks. In maturity, the roots form distinctive buttresses around the base of the trunk. Readily available as seed on Ebay, or as whips and potted trees from continental nurseries

### **PERFORMANCE**

- +++ Stability (resistance to wind rock)
- ++ Resistance to exposure (leaf scorch, branch breakage)
- +++ Resemblance to native elm
- +++ Suitability for street planting
- +++ Rate of growth (height increase: 80 cm, d.b.h. increase: 3.9 cm p. a.)
- +++ Tolerance of waterlogging (>3 months' inundation over winter)
- +++ Tolerance of drought

**Wikipedia:** [https://en.wikipedia.org/wiki/Ulmus\\_laevis](https://en.wikipedia.org/wiki/Ulmus_laevis)

**ResistantElms:** <http://www.resistantelms.co.uk/ulmus-laevis/>

## 8. Recommended trees

### Countryside

Sheltered sites with moist, well drained soils:

*Ulmus minor* 'Ademuz' etc

'Nanguen' = LUTÈCE

*Ulmus laevis*

Exposed downland with arid, chalk soils:

*Ulmus minor* 'Ademuz' etc

'Plinio'

'Nanguen' = LUTÈCE

Waterlogged sites with heavy clay soils:

*Ulmus minor* 'Ademuz' etc

'Nanguen' = LUTÈCE

*Ulmus laevis*

### Town

Parks:

'Nanguen' = LUTÈCE

'San Zanobi'

'Sapporo Autumn Gold'

*Ulmus laevis*

Streets:

'San Zanobi'

'Rebona' (not included in BC trials)

'New Horizon' (on free draining soils only)

## 9. Bibliography

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- Santini, A. et al. (2008). *Euphytica* 163: 45-56. 2008
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## 10. Disease-Resistant Elm Cultivars & *Ulmus laevis*: Suppliers in or to the UK

There are no British nurseries with Plant Breeders' Rights enabling them to propagate DED-resistant cultivars, consequently all trees sold are imported from Europe. Owing to historically poor demand, numbers available are usually low, except for standards sold for street planting by Hillier Nurseries and others. Ergo, where large scale planting is envisaged, importing direct from a continental wholesale nursery is often the only option. While prices are generally lower, carriage costs usually cancel this saving. Moreover, most European nurseries will insist on a minimum order value of €500.

### 'Ademuz' and other Spanish *U. minor* clones

TBA

### 'Nanguen' = LUTÈCE

Duchy of Cornwall Nursery, Lostwithiel, Cornwall

5-litre pot trees

[www.duchyofcornwallnursery.co.uk](http://www.duchyofcornwallnursery.co.uk)

email: [sales@duchyofcornwallnursery.co.uk](mailto:sales@duchyofcornwallnursery.co.uk) tel. 01208 872668

Les Pépinières Minier, 49250 Beaufort-en-vallée, France

Small potted trees (min. order value €500)

[www.pepinieres-minier.fr](http://www.pepinieres-minier.fr)

email: [gbsales@minier-nurseries.fr](mailto:gbsales@minier-nurseries.fr) tel. 00 33 2 41 79 48 43

### 'New Horizon'

Hilliers Nurseries, Andlers Ash, Liss, Hants

Standards

[www.hilliertrees.co.uk](http://www.hilliertrees.co.uk)

tel. 01794 368733

### 'Plinio'

Umbrador, Spello, Italy

All sizes (min. order value €500)

[www.umbrador.it](http://www.umbrador.it)

email: [umbrador@umbrador.it](mailto:umbrador@umbrador.it) tel. 00 39 742 315007

### 'Rebona' (a more fastigiate sibling of 'New Horizon' not included in BC trials)

Hilliers Nurseries, Andlers Ash, Liss, Hants

Standards

[www.hilliertrees.co.uk](http://www.hilliertrees.co.uk) tel. 01794 368733

### 'San Zanobi'

Umbrador, Spello, Italy

All sizes (min. order value €500)

[www.umbrador.it](http://www.umbrador.it)

email: [umbrador@umbrador.it](mailto:umbrador@umbrador.it) tel. 00 39 742 315007

### 'Sapporo Autumn Gold'

Les Pépinières Minier, 49250 Beaufort-en-vallée, France

Bare-root whips, 1.5m tall (min. order value €500)

[www.pepinieres-minier.fr](http://www.pepinieres-minier.fr)

email: [gbsales@minier-nurseries.fr](mailto:gbsales@minier-nurseries.fr) tel. 00 33 2 41 79 48 43

cont:-

## 10. Disease-Resistant Elm Cultivars & *Ulmus laevis*: Suppliers in or to the UK, cont.:

### *Ulmus laevis*

Noordplant, Glimmen, Netherlands

Bare-root whips @ 1.5m

[www.noordplant.nl/](http://www.noordplant.nl/)

email: [r.nijboer@noordplant.nl](mailto:r.nijboer@noordplant.nl)

Umbraflor, Spello, Italy

All sizes, but not bare-root

[www.umbraflor.it](http://www.umbraflor.it) (min. order value €500)

email: [umbraflor@umbraflor.it](mailto:umbraflor@umbraflor.it) tel. 00 39 742 315007

NB Seed available on Ebay