

Comparison of Japanese Maple Production in United Kingdom, France, and Italy

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INTRODUCTION

This Mary Helliard Travel Scholarship was undertaken to study the production of *Acer palmatum* in France and Italy and to see if any of the methods used there could be used to improve the quality of Japanese maples produced and retailed in the United Kingdom. To compare production methods I visited three recommended producers: Filli Gillardelli, 20041 Agrate Brianza, near Milan, Italy; Maymou Nurseries, 64100 Bayonne, near Biarritz, France; and Liss Forest Nursery, Greatham, Hampshire, U.K. Both Gillardelli and Maymou produce their plants in open ground and I was particularly interested in the part played by soil and climate in their production method and their effect on the quality of the resulting plants.

ORIGIN AND CLIMATIC PREFERENCES OF JAPANESE MAPLES

The Latin *Acer* means "sharp", perhaps a reference to the hardness of maple wood, which was used by the Romans for their spear shafts. There are more than 100 species in the genus but this report looks at the commercial production of only two of them, *A. japonicum* and *A. palmatum* (three if, as does Hilliers Manual, one classifies *A. shirasawanum* as a separate species) which are, together with their numerous cultivars, referred to as Japanese maples.

These species originate from East Asia, central China, Korea, and Japan. They prefer a temperate climate and a moist but well-drained loam soil. The leaves are delicate and susceptible to damage by water stress caused either by excessive sun or cold wind, both of which will scorch the leaves of some cultivars. Both Gillardelli and Maymou nurseries are located in areas of high rainfall and relatively mild winters (minimum temperatures no colder than -2 to -5C) where field-grown plants are not subjected to the fatal combination of cold and damp. The availability of water is important to make the most of the two or three flushes of growth, which these plants will make each year.

At present most imports of Japanese maple to the U.K. come from other E.C. countries, mainly from Holland. Some plants are thought to come from Japan, where the plant quality is excellent, via Holland. New Zealand, where plants are field budded, produces good quality plants, but transport costs are high and the plants suffer a setback from the 6-month change in seasons.

JAPANESE MAPLE PRODUCTION AT FILLI GILARDELLI

The nursery consists of five sites with a surface area of 80 ha on flat land to the west of Milan. The soil is a slightly clay loam with a pH of between 6.5 and 7. The area receives on average between 1000 mm and 1500 mm of rain each year. The minimum temperature is between -2 and -5C.

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A system of field grafting perfected by Giordano Gilardelli, one of the current owners, enabled the firm to move from relatively small scale to very large-scale production of Japanese maples and it currently has about 1 million plants in production. As well as Japanese maples it grows conifers, trees, shrubs, and climbers with a tendency to produce mature specimens for the landscape and amenity market. The nursery produces its own seeds for growing rootstocks and has many plants for sale which are up to 40 years old.

Gilardelli grows more than 100 cultivars of Japanese maples, but production is concentrated on about 40. None of the cultivars are propagated from cuttings. For the rootstocks, seeds are sown under protection and seedlings are either grafted in the pot when they are 2 years old, and then planted out in the field; or they are planted out and grafted using whip and tongue grafts when they are 5 or 6 years old. The 2-year-old grafts were of a side cleft type, which the propagator described as being a variation on a "maiorchina" graft. Grafting is done between June and September, and they expect 90% to 95% graft take although this is reduced considerably if the summer is hot. The main pests are two-spotted spider mite (*Tetranychus urticae*) and vine weevil (*Otiorhynchus sulcatus*).

The pricing structure for plants is based on their size and the number of times they have been transplanted. They find that transplanting increases plant development and leads to a more uniform product. Their marketing strategy emphasizes the quality of their plants and the exclusivity of some of their own selected cultivars, including a selection of *A. palmatum* Dissectum Atropurpureum Group which they call 'Pink Filigree' and a selection called *A. palmatum* 'Orange Dream'.

JAPANESE MAPLE PRODUCTION AT MAYMOU NURSERIES

The nursery is situated in wooded hills just above Bayonne. The vegetation in the area is noticeably lush, especially in contrast to the flat countryside to the north around Bordeaux. As in Milan, the rainfall averages between 1000 mm and 1500 mm per year, and the minimum temperature between -2 and -5°C. The soil tends to be acidic because of the high rainfall. Monsieur Maymou's grandfather started the business and there are many large *A. palmatum*, up to 12 m tall, edging parts of the nursery. Japanese maples are the main crop but there are many other trees and shrubs, all field grown. All the Japanese maple rootstocks are grown from seeds collected on the nursery and sown in trays immediately after collection in November or early December. About 2 months after germination, when the roots are well developed, the seedlings are pricked out into clay pots with loam-based compost. At the beginning of September these are plunged into a cold frame under shade — although some seedlings are at this stage lined out in the field.

The potted seedlings are grafted in August of the following year using a side veneer graft. Once the grafts take, the understock is headed back a bit — an operation repeated about a month later if necessary. Once growing, plants are not pruned as a natural shape is preferred. Lined-out plants are top worked at a height of about 1.3 m. The graft used here is a development of a shield graft: a scion about 10 cm long is taken with the branch collar. A "T" cut is made in the rootstock stem, the scion is then slid into position and tied.

In the field no fertilizer is applied and rainfall usually supplies sufficient irrigation here. The surrounding forests also increase humidity and offset the

effects of any drying winds. There was no leaf scorch to be seen and M. Maymou said that he had never had any problem with dieback.

Verticillium wilt has been a problem in some areas of the nursery, and these have been set aside. He sells his field-grown plants bare rooted in winter.

JAPANESE MAPLE PRODUCTION AT LISS FOREST NURSERY

The nursery is situated north of Petersfield in Hampshire, southern England and produces ornamental trees and shrubs, with a particularly wide range of Japanese maple as well as *Ceanothus*, *Clematis*, and *Hebe*. Slightly more than half of the 32 listed Japanese maple cultivars are produced by grafting the remainder from cuttings.

Cuttings. Cuttings are taken in May and take 6 weeks to root. They must be potted on by July, otherwise they are left in their trays and are potted the next year. If they are potted after July they will not have time to harden off. Nodal tip cuttings, normally with 2 nodes, are made from the base of the wood working upwards. When the wood towards the tip loses its stiffness or resistance it is not used as it tends to rot off. The cuttings are then dipped in a hormone powder containing 0.3% w/w indolebutyric acid (e.g., Seradix 2) and stuck in a peat and grit mix containing 10% bark. They are then given 18C basal heat with mist. The rooted cuttings are potted from 9-cm to 12-cm pots with a compost of peat, bark, grit, and loam (11 : 3 : 1 : 1, by volume). The loam is added to absorb any excess fertiliser.

Grafting. Grafting is done using side veneer grafts in June and July on understocks between 1 and 3 years old and matching understock and scion wood of the same size. Scionwood varies from one to three nodes long depending on the availability of material. Sealing the summer grafts with wax is unnecessary but the grafted plants are kept humid under polythene covers. It is important to check watering regularly at this stage to maintain humidity. Once the grafts have taken they are gradually aired about 4 weeks after grafting and they will be fully aired 2 weeks after that. The top of the understock is removed early in the spring of the following year, although some growers remove it in September or October. Potted on plants are then stood on an Efford sand bed in an unheated polythene tunnel and irrigated from the bed from the end of May onwards. The plants are pruned between growth flushes to produce a bushier plant.

CONCLUSION

The requirement of Japanese maples for plenty of water and warm, humid conditions was met by high natural rainfall at the Italian and French nurseries; however, in southern England such conditions can successfully be replicated using polythene tunnels and Efford sand beds and such techniques can produce plants of similar quality in pots.

The field growing system is, however, more suited to the production of larger plants than are currently generally sold in the U.K. market. French and Italian buyers do, however, seem prepared to pay for large specimens while U.K. buyers want as much growth as cheaply as possible.

The Italian market seemed to prefer a neatly dome shaped plant while the French wanted a more natural-looking unpruned plant.

From catalogues it is only possible to make approximate comparisons of the wholesale price of plants, which varied between 58.1 DM for plants at 80 to 100 cm from Gilardelli, to 20 DM for plants at 40 to 60 cm from Liss Forest.

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Notes on the Propagation and Cultivation of *Romneya coulteri*

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INTRODUCTION

Romneya coulteri is native to the Santa Ana Mountains, southeast of Los Angeles, California, where it is said to be abundant. The Irish botanist Dr. Thomas Coulter discovered it in 1833. The generic name commemorates the Irish astronomer Dr. F. Romney Robinson, a friend of Dr. Coulter.

Romneya coulteri was not introduced to the British Isles until 1875, when seeds were received by E. G. Henderson and Co. and by Thompson of Ipswich. The first recorded flowering took place in Ireland where a small plant at the Glasnevin Botanic Garden opened one bud in the autumn of 1876, having been planted in the March of the same year. The following year it flowered abundantly after reaching 1.8 m in height.

PROPAGATION

Although most commonly propagated by root cuttings, *R. coulteri* is very easy to germinate from seed which can be stored for many years without losing its viability. The essential ingredient is petrol to break the seed coat. Wrap the seed in muslin and soak in the petrol for 10 to 15 min before washing thoroughly in soapy water several times. Remember petrol is highly flammable or explosive so take great care. Use a container holding the minimum amount of petrol necessary and keep it well away from sparks or other sources of combustion — remember that petrol vapour can spread over some distance. Wear protective gloves and avoid having petrol come into prolonged contact with your skin.

Mix the seed in vermiculite for easy sowing then sow quite thickly and cover with sharp sand. Place the seed trays outside for the autumn and winter but keep a close eye on them, as germination can start as early as November/December, although it does not usually occur until February. As soon as you see signs of germination, put the trays into a frost-free glasshouse and prick out as soon as germination has occurred. Germination will be rather uneven but pricking out must be done before the second pair of leaves appears because the seedlings do not react well to disturbance, even at this stage. You will get several flushes of germination over 3 to 4 months.