

Hormone levels are manipulated to control plant growth. Initially auxins and cytokinins (NAA and BA) are used to promote cell division multiplication. After a mother stock is established a portion of the crop is transferred to rooting medium that contains auxin (IBA) to promote rooting. Rooting occurs in 3 to 6 weeks.

After the plants are rooted they are transferred to soilless medium in the greenhouses and placed in shaded benches with bottom heat of about 78 °F (10 °F higher than air temperature). They are grown until the roots are well established (8 to 10 weeks depending on cultivar and time of year) and are ready for sale. Hostas are planted in packs of 12, a standard flat holds 96 plants.

Some of our more popular newer offerings include: 'Blue Mouse Ears', 'Dawn's Early Light', 'Earth Angel', 'Stained Glass', and 'Old Glory'. The last three are selections developed by Shady Oaks Nursery.

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## Difficult-to-Propagate Perennials<sup>®</sup>

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***Gentiana acaulis***. Spring or trumpet gentian produces an evergreen mat up to 1 m spread. Propagation is usually by seeding; the seed requires a cold period. The germinating seedlings are too small in the 1st year to transplant and even in the 2nd year they are not larger than 3 mm. Plants will not flower until at least the 4th year after transplanting. The plants can be divided but increase is poor because most stolons are not rooted. However there are latent root primordia, which under mist produce a good root systems. Unrooted stolons planted in May to June will have roots by the beginning of August and can be potted up; the rooting mix is 1 Grow mix : 1 fine Turface (v/v). The mist system is in a shaded polyhouse and on every 15 min for between 1 and 3 sec depending on temperature. The rosette size determines how soon a plant flowers, the larger the better.

***Gentiana septemfida***. This is a fall gentian, it is deciduous except for resting buds at ground level. It is a somewhat easier plant to grow from seed and can flower in the 2nd season in August to September. The remains of the flower corolla cover the ripening seedpods and unless it is removed the seedpod and seed rot because of autumn moisture. A crop failure caused us to try cuttings. Shoots of 10 cm were taken 10 June, treated with 1250 ppm IBA (3-sec dip), and inserted in a mixture of 1 Grow mix : 1 fine Turface (v/v) under mist. Rooted cuttings were potted at the beginning of August; rooting percentage was 92%. Unrooted cuttings had flower buds while the rooted cuttings did not.

***Lithodora diffusa* 'Heavenly Blue'**. This is an evergreen ground cover flowering sky-blue in May to June; it requires acid soil. We have tried cuttings previously at various times during the summer with no results. We decided to experiment with different percentages of hormone treatments, timing, and various cutting sizes. Cuttings were taken 10 June and 14 July. Results are shown in Table 1. As you can see the early cuttings rooted consistently around 75% with the exception of cuttings with flowers on them.

**Table 1.** Effects of cuttings stage and hormone on rooting of *Lithodora diffusa* 'Heavenly Blue'.

Condition	Cuttings (no.)	Treatment (ppm)	Rooted	Unrooted	Dead
Cuttings stuck					
10 June 2004			Results 10 Aug. 2004		
With old wood: retreated 30 June	12	625	9	3	
With old wood	24	1250	17	3	4
With flowers	12	1250	2	3	8
New wood	9	1250		9	3
Cuttings stuck					
14 July 2004			Results 3 Sept. 2004		
Ripe wood: some seed removed	56	1250	0	53	3

***Geranium cinereum* subsp. *subcaulescens* 'Giuseppii' and *Geranium cinereum* 'Ballerina'**. These evergreen geraniums can be divided, which usually produce between one and three divisions but this procedure is not economical. Cuttings from the crown of the plants can yield 3 to 5 or more short 5- to 8-mm cuttings without spoiling the plant from being saleable. What is the problem? It is that the cuttings will root very poorly during the usual times spring and summer, fall bingo. Cuttings taken from plants divided in summer have multiple short shoots of which a number can be taken, we feel that a plant needs five shoots to be saleable for the next spring; the surplus is used for cuttings. We start our cuttings when the weather gets cooler at the beginning of October. Short cuttings of 4 to 6 mm are trimmed leaving just the small leave. We use a #1 rooting hormone and insert 10 cuttings per row, 12 rows per standard flat. The rooting mix is 5-cm Grow-Mix topped with an equal layer of fine sand. The flats are placed in an unheated polyhouse kept moist until the middle of December our normal freeze up. We cover with Microfoam until the beginning of March, when we heat the house to 18 °C. Most cuttings will be rooted by beginning of May and are grown on in pots for sale the following spring.