

Propagation and Cultivation of Selected Gingers in the Subtropics

Russell Adams

Russell Tree Farms / Adam's Eden, 3714 N. W. 39th Avenue, Gainesville, Florida 32606

INTRODUCTION

Gingers are a large group of exotic plants with an unmistakable tropical appearance. Currently, taxonomists recognize 40 genera and over 1500 species of gingers. As a result of recent collecting trips into China, Burma, Malaysia, and Thailand, many more exciting species and cultivars are soon to be introduced. Fossil records indicate that gingers have been around for at least 65 million years and have inhabited such unlikely places as the North American plains, Canada, and even Russia. Their ancient past gives clues to their best kept secret.

Cold Hardiness of Gingers. Despite their tropical appearance, many gingers are surprisingly cold hardy, especially *Hedychium* and *Curcuma*, which thrive and bloom as far north as Atlanta, Georgia and Raleigh, North Carolina (U.S.D.A. Zone 7). Some gingers such as *Alpinia*, *Hedychium*, and *Costus* are evergreen in warmer climates, although frost will damage or kill the foliage of most gingers. Others such as *Curcuma*, *Globba*, and *Kaempferia* are deciduous, experiencing a dormancy period even in the tropics. This deciduous nature allows temperate gardeners to enjoy many more gingers than their tropical origin might indicate. For example, *Globba winitii*, a native of Zone 10, can successfully grow to bloom in Zone 7 provided soil is sufficiently well drained to keep the rhizome from rotting during the dormant winter months.

Forms and Habitats. Most gingers complement their exotic foliage with beautiful, often fragrant flowers. Gingers range in size from tiny groundcovers like *Kaempferia* to giant *Hedychium* and *Alpinia* best used as background plants. Gingers prefer moist, fertile soil, and are generally considered to be shade plants. Many, especially *Curcuma* and *Hedychium*, will thrive in full sun provided they have adequate moisture. They are remarkably free of most diseases and pests that plague other perennials. This, combined with their easy culture, exotic foliage, and tropical blooms, make gingers one of the most exciting crops on the market today.

PRODUCTION OF GINGERS IN GAINESVILLE, FLORIDA

We have been growing gingers in Gainesville, Florida (Zone 8b) for 8 years. Our average minimum temperature is -8C (18F) and we usually average 18 nights with temperatures below 0C (32F). *Hedychium* taxa are grown in full sun with overhead irrigation. *Curcuma* taxa are also grown in full sun with the exception of *C. roscoeana*, which is grown under 50% shade cloth. *Globba*, *Alpinia*, *Costus*, and *Kaempferia* are also grown under 30% to 50% shade depending on the species.

Hedychium is left in the field during the winter months with overhead irrigation. Plants are covered with 6-mm black plastic or freeze-protection cloth only if the temperature is expected to stay below freezing for 4 to 6 h.

Costus, *Curcuma*, *Kaempferia*, and *Zingiber* are removed from irrigation and covered with clear plastic in a shady spot to keep them dry for the duration of winter. Fertilization and watering is resumed as new growth appears in the spring.

Alpinia is carried over in a cool greenhouse (temperature is kept above freezing) as the foliage recovers slowly from a hard freeze, and it will not bloom if the canes freeze. Soil medium consists of fresh pine bark, Florida peat moss, and sand (6:4:1, by volume), and MicroMax® trace element formulation incorporated at 1.2 kg m⁻³ (2 lb yd⁻³). The pH is 5.5 to 6.0. SCOTT'S Pre-Mix® 24N-7P-8K with minors is applied at regular intervals throughout the growing season. No additional high phosphate fertilizers are used, as strong vegetative growth seems to be the key to large and frequent blooms.

DESCRIPTION AND PROPAGATION OF SELECTED GENERA

***Alpinia*.** Although the largest genus of gingers with over 150 species, only a handful are grown in the U.S. due to their tropical nature. With the exception of *A. purpurata*, which has beautiful, large, pink, red, or white bracts and is grown throughout the tropics for cut flowers, most *Alpinia* are grown for their luxurious dark green or variegated foliage. *Alpinia zerumbet* 'Variegata' is by far and way the most popular *Alpinia* in the U.S. Tissue culture has made this plant an integral part of most landscapes in central and south Florida, and no self respecting Wal-Mart or Home Depot throughout the Southeast would consider their collection of tropical foliage plants complete without at least a few dozen of these wonderful plants.

Alpinia species can be grown from seed but require hand pollination if the natural pollinators are not present. Hybrids are possible and a few have been introduced. Division is a reliable and a relatively quick method for increasing stock to commercial quantities of rare and lesser known species. Tissue culture is the only way to keep up with the evergrowing demand for the few cultivars that have gained enough popularity to require production in the tens of thousands.

***Costus* (spiral ginger).** *Costus* and a few other lesser known genera have been removed from true gingers, family *Zingiberaceae*, and placed in their own family, *Costaceae*. However, most growers and many scientist still consider them gingers and they will be treated as such here. Most spiral gingers are from Central and South America, although a few are native to Africa and Southeast Asia. *Costus* is more tropical in nature than other gingers and has no winter dormancy. Spiral gingers may show foliage damage at 7C (45F), and none will tolerate frost. Even though they freeze to the ground by mid fall, they recover rapidly in spring. They will provide exotic spirally arranged foliage throughout the warm months even if they do not bloom. Some spiral gingers are hardy to Zone 7, but few will bloom north of Zone 8. Spiral gingers heights range from flat stemless groundcovers to giants 6 m (20 ft) tall. Flowers may be large and crepe-like with frilled margins, produced by a collection of small bracts, or stiff and tubular, emerging from large suppressed bracts, which form a colorful, waxy cone. In either case, flowers are produced singly or in small numbers from terminal inflorescences for a period of several months. Light requirements for *Costus* taxa range from shade to full sun although most prefer at least partial shade for best color.

Costus is unique in the ginger group in that it has true stems and can be rooted easily from stem cuttings. Cuttings taken from the top third of the stem have the highest rooting success and may be placed upright in the rooting medium with at

least two nodes below the medium, or entire stems may be laid horizontally and covered with 6 to 13 mm (0.25 to 0.5 in.) of loose medium. Spiral gingers are also readily propagated by division during the growing season. Seeds may be obtained from many species if hand pollinated. Seeds should be sown immediately and may need bottom heat.

***Curcuma* (hidden lily).** Somewhat similar in appearance to short-stalked bananas, hidden lilies have broad, paddle-shaped leaves that are somewhat pleated, and range in height from 0.6 to 2.1 m (2 to 7 ft). Inflorescences may be terminal, peering just above a whorl of leaves, or on a leafless lateral stalk. Bracts form showy “cones,” varying in color from white, greenish to pink, red, or orange. Flowers are yellow to white or sometimes purple, emerging from bracts in sequence, starting at the base and spiraling upwards. The bloom cycle usually lasts from 4 to 6 weeks for each inflorescence, though bracts will remain colorful for much longer, some for 12 weeks. Blooming season varies by species. The first bloom in Florida is as early as May, with later bloomers beginning in September. Plants are dormant in winter, which helps explain why they are hardy to U.S.D.A. Zone 7. Most hidden lilies thrive in partial to full sun.

Most hidden lilies that have been cultivated for centuries are sterile; seed production and hybridization, therefore, is limited to the few wild collections that have been made in recent years. Rhizome division is the most common and successful method of propagation. The best time to divide rhizomes of spring-blooming species is just after blooms fade. Summer and fall bloomers should be divided in early spring before rhizomes break dormancy. The success of tissue culture was initially sporadic but has now proven successful for many species.

***Hedychium* (butterfly ginger).** As a group these are the most cold-hardy gingers. Many originate from the Himalayas and will grow and bloom in the Atlanta area. The inflorescence is a terminal panicle of green bracts. Each bract will produce from two to seven orchid-like flowers. The flowers, up to 10 cm (4 inches) across, usually are extremely fragrant, and come in colors ranging from pure white through yellow to peach and orange/red. Butterfly gingers may be small plants, as in the case of the 38 cm (15 inch) *H. muluense*, or soaring giants like ‘Pink V’, which may reach 3 m (10 ft) tall or more. Height of butterfly gingers is somewhat dependent on light intensity, as is abundance of bloom. They begin blooming in Gainesville in mid-June and continue until frost.

Most taxa, with the exception of the tropical epiphytes, are hardy and bloom in Zone 8 and may into Zone 7 — although in more northern climates such as Zone 7, they may not start blooming until late July in the U.S. In truly tropical areas, butterfly gingers are evergreen and everblooming; *H. coronarium* is considered a noxious weed in the state of Hawaii, and an eradication plan is underway.

Butterfly gingers can be rooted from stem cuttings by laying them horizontally and covering with 2.5 cm (1 inch) of mulch. This method of propagation is not practiced commercially, however, as rhizome division usually produces enough plants to meet demand. Butterfly gingers produce seed readily if hand-pollinated, and unfortunately often set seed when pollinated by moths. This fact is a curse more than a blessing to the nursery industry as more than a few inferior seedlings have been distributed throughout the trade, whether intentionally or through ignorance, under the cultivar name of one parent. **I implore all nurserymen to eliminate**

seed production of butterfly gingers unless pollination is carefully monitored and controlled. Tissue culture is successful with butterfly gingers, but with successful division propagation, it hardly seems worth the trouble or expense.

***Kaempferia* (peacock gingers).** Peacock gingers are an underused group of low herbaceous perennials usually less than 0.3 m (1 ft) tall with large rounded leaves which may be streaked or mottled with varying shades of purple, green, or silver. This dazzling array of iridescent colors gives the group its common name. Peacock gingers prefer deep shade, where they form thick clumps or drifts. Any direct sun will cause the leaves to curl and the flowers to fade. Leaves recover quickly once the sun passes, but the flowers, which only last a day, do not. Flowers are usually violet and white. At least one species, *K. rotunda*, blooms in spring before the leaves appear. Most others produce a profusion of flowers throughout the growing season. Peacock gingers are dormant in winter, which makes them reliably hardy through Zone 8, although a few will survive in Zone 7. Peacock gingers make an excellent replacement where the climate is too warm for hostas to survive, and a good companion plant a little further north.

Peacock gingers will set seed if hand pollinated and some hybrids are being produced. Division is still the propagation method of choice, as peacock gingers multiply readily and offsets are true to type. Tissue culture is also successful although it may take a year or more before the true patterns of some cultivars become evident.

CONCLUSION

Gingers are a wonderfully diverse group of plants that are only now beginning to receive the attention they so richly merit. With reasonable care in the selection and evaluation process, gingers may very well head the list of best perennials in the new millennium.