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Ornamental Ginger, Red and Pink

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Red ginger, *Alpinia purpurata* (Vieillard) K. Schumann, is a tall, upright, herbaceous, evergreen plant from the South Pacific, with bright red floral bracts and inconspicuous white flowers. Native to New Caledonia, New Hebrides, Yap, British Solomon Islands Protectorate, Bismark Archipelago, and Bougainville, it is widely cultivated in the tropics and subtropics. It was introduced to Hawai'i as an ornamental before 1930, and it is naturalized here in valleys and on the windward sides of islands. It grows well in rich soil and in wet habitats, but it can grow in dry areas as well. Red ginger is quite popular as an ornamental and cut flower, both for the home and for commercial sale. When we refer to "red ginger" in this publication, this usually includes both red and pink gingers.

Characteristics

Description

Leafy, cane-like stems arise from rhizomes to form a plant 3–15 feet tall and 2–4 feet wide. A stem's single inflorescence can be up to about 12 inches long. The rhizomes spread laterally in thick clusters, producing aerial shoots at the periphery of the clusters as older shoots dry up after their inflorescences mature and produce offshoots. The rhizomes and stalks are aromatic.

Leaves

The deep green leaves are alternate and sessile (lacking a petiole), with a long sheath that wraps around the stem. Leaf blades are oblong, 12–32 inches long and 4–9 inches wide, with a pointed apex.

Alpinia purpurata
Zingiberaceae (ginger) family
Synonym: *Guillainia purpurata*
Common names:
red ginger, ginger, pink cone ginger, fire ginger, ostrich plume, pine cone ginger
Hawaiian name: 'awapuhi 'ula'ula

Flowers

A shoot bears an inflorescence about 4½–5 months after it emerges. The inflorescence is a compact spike 6–12 inches long with a cluster of bracts overlapping to form a cone or funnel shape. Inflorescences are normally erect but droop if large. Although the ovate or broadly obovate 1-inch long bracts are what most people think is the flower, the bracts subtend small, tubular, white ¼-inch flowers having a narrow lip. The flowers open a few at a time.

Fruits

The plant produces seed capsules only rarely. The capsules are nearly globose, about 4–6 inches long and ¾–1¼ inches in diameter, and split open when the seeds are ripe. The seeds are about 1/10-inch long, black, oily, and may have a red aril.

Location

Soil

Red ginger grows best in fertile, organically rich, moist, well drained soils with a pH range of 6.0 to 6.8. In poorly drained clay soils, chlorosis attributed to high manganese content may occur. Chlorosis due to high pH in calcareous soils is a common problem.

Light

Red ginger grows best under full sunlight. It also grows under partial sun and light shade. Pink cultivars suffer from a tip burn disorder that is less-

ened with 30 percent shade. Flower yield and rate of development depends on the amount of sunlight received by the plant.

Temperature

Red ginger grows best where the temperature is constantly above 60°F. When the temperature drops below 50°F, red ginger grows very slowly, turns yellowish-green, and produces small, tight cone-like inflorescences that do not open normally. When the minimum temperature is above 70°F, an emerging stalk flowers in 4½–5 months. Flowering occurs year-round, with greater production during the summer. Some yellowing of the foliage occurs at high temperatures.

Rainfall

Red ginger does better with supplemental irrigation if it is in an area with moderate rainfall.

Elevation

The plant grows up to approximately 1600 ft elevation.

Tolerances

Red ginger is not tolerant of temperatures below 50°F. At 41°F or less, the foliage and inflorescences die. It is shade tolerant but does not thrive in heavy shade. It does fine in light shade and tolerates moderate shade. Red ginger has low salt tolerance and is not drought tolerant. Provide protection from the wind and salt spray, as browning, tip burn, and discoloration may result.

Landscape uses

Red ginger is a very useful and perennial with diverse forms. With its long, attractive red flower bracts and lush green leaves, it works well in tropical-theme landscapes. It is useful as a tall informal hedge or screen. It is a good backdrop or foundation planting, especially in front of blank walls. It can be used as a shrub border in mass plantings or as a specimen plant. It can be harvested as a cut flower.

Red ginger is easily grown and maintained. The plant is more productive when started from rhizomes. When blooms fade, remove stems to ground level. Since this plant can spread extensively, use caution when planting it near natural areas that it might invade. In such cases, plant it in containers or surround beds with a physical barrier such as a plastic mow strip.

Culture

Watering

Keep the soil moist. Red ginger requires 1 inch or more of water per week from irrigation during droughty periods. The best flower quality is achieved with generous irrigation.

Fertilizer

Apply a complete fertilizer once a month. Flower production increases with increasing levels of nitrogen fertilizer. High levels of nitrogen fertilizer do not adversely affect the postharvest life of the flowers.

Pruning

Prune to remove spent flowering shoots and yellowed and unsightly foliage. Cut off spent flowers at the ground.

Propagation

Offshoots

Inflorescences develop aerial offshoots (small plantlets) from the sides of the bracts (the bract axils). These offshoots can be used as the source of new plants. The offshoots grow rapidly and soon weigh down the mature stem.

To propagate with offshoots, the whole flower head can be bent into a pot and covered with soil. After roots have formed from the offshoots several weeks later, cut off the mass of rooted offshoots from the mother plant. The rooted plantlets can be separated and planted in pots. Or, offshoots can initially be separated from the inflorescence and planted in individual pots.

Rooting of offshoots is improved with 500 ppm auxin (IBA or NAA), although they can be rooted without hormone treatment. Plant the offshoots in vermiculite or perlite to allow roots to develop before transplanting them into the ground. Red ginger propagated from offshoots makes full, attractive foliage plants in 6-inch or larger pots. About 2 years is required to produce flowers of marketable size and quality.

Rhizomes

Some cultivars do not develop offshoots and must be propagated by rhizome divisions. Divide the rhizomatous mat into small clumps of one to four stems. If the roots are not well developed on the horizontal rhizome, the upright stem should be cut back to reduce water loss. Dust the individual pieces with a fungicide and plant

them 2 inches below the surface in vermiculite or another well drained medium. Keep them in a warm place (50°F minimum at night) but not in full sun. Water periodically until the plants are established. Rhizome-propagated plants typically produce marketable flowers within a year when planted in beds.

Seeds

Seeds are rarely produced. Sow seeds shallow in a moist, slightly acidic, well drained organic medium. Seeds germinate in 2–3 weeks. The seedlings may be transplanted into larger pots as soon as they are large enough to handle. With heavy fertilizer application, some flowers will be produced in 2–3 years.

Commercial production

According to Hawai‘i Department of Agriculture statistics, 64 farms produced 134,000 dozen red ginger flowers in 2005 valued at $995,000. Forty-seven farms produced 62,000 dozen pink ginger flowers valued at $454,000. The value of out-of-state sales of red ginger (including wholesale and retail sales) in 2005 was $680,000.

Soil

A fertile, well drained soil is recommended. In poorly drained clay soils, chlorosis occurs, attributed to high manganese content. The soil pH range should be from 6.0 to 6.8. Chlorosis due to high pH is a common problem in calcareous soils.

Planting

An in-row spacing of 4–6½ feet is recommended. Thin out weak flower stalks, leaving 8–12 heavy stems per yard of row. Closer spacing increases yield per unit of production area, but yield per plant is reduced. Less dense plantings permit greater per-plant yields.

Fertilizer

Grower practice is a handful of fertilizer distributed around the plant three to six times a year using a 1:1:1 to 3:1:5 NPK ratio formulation. Increasing nitrogen fertilizer increases the number of marketable flowers. The suggested minimum elemental content of healthy green foliage is 2% N, 0.16% P, 1.8% K, 1.8% Ca, and 0.4% Mg. For microelements, adequate leaf tissue levels are in the ranges 450–700 ppm Mn, 30–60 ppm Fe, 10–15 ppm Cu, 40–90 ppm Zn, and 15–25 ppm B.

Irrigation

Good flower quality is achieved with high amounts of irrigation. Red ginger requires water in excess of 1 inch per week during periods of drought stress.

Harvesting

Time to harvest is shorter in the summer than in the winter. Inflorescences are harvested in the early morning while still turgid. They should be cut when the bracts are about two-thirds to three-fourths open, as an immature flower has a longer shelf life than a mature flower. The entire shoot should be cut at ground level, if possible, because a longer stem increases the postharvest life of cut flowers. To extend shelf life, trim all or all but the top one to three leaves from the stem in the field or at the packing shed prior to cleaning. Keep the stem bases in water during transport from the field to the packing area.

Rhizome-propagated plants typically produce marketable flowers within a year after establishment. Red gingers propagated from plantlets require from 1½–3 years to produce flowers of marketable size and quality. Floral spikes are harvested about 4–5 months after stem emergence. Although production is year-round, the greatest number of flowers is produced during the summer months. In addition, the time to harvest is shorter in summer than in winter.

Postharvest handling

Treatments

In the field, red ginger is often heavily infested with ants, aphids, soft scales, and mealybugs. If left unchecked, pest buildup can make postharvest disinfestation time-consuming and difficult. A combination of pest management in the field and treatment after harvest is recommended for quarantine security on red ginger exported from Hawaii.

Once flowers reach the packing shed, they are placed in a bath containing a commercial preservative and thoroughly washed. Postharvest life is increased by use of floral preservatives containing 2% sucrose and 8-HQC (8-hydroxyquinoline citrate), antitranspirants, or simply recutting the stems. Soaps can be used to clean the flowers and kill the insects. Hot water treatment of red ginger at 120–122°F for 12–15 minutes extends postharvest life, kills most of the pests that infest red ginger, and reduces the geotropic response.

Grades and standards

For Hawaii Fancy grade, minimum stem lengths of 35 inches are preferred for export, with an inflorescence length of 8 inches. For Hawaii Standard grade, an inflorescence length of 6 inches is preferred. The cut end of the stem should be a minimum of ⅜-inch diameter. Hawai‘i shippers cut stems for shipment in the 24–59-inches range. Postharvest life of cut red ginger flowers increases with increasing stem length.

Storage

Store red ginger at 54.5–59°F, making sure that the flowers do not exhibit chill damage symptoms such as off-colored (grayish or bluish) blooms. The inflorescence has a strong geotropic response and should be stored upright in water to avoid bending. A holding solution of 2% sucrose (w/v) is recommended. To maintain the best quality, the relative humidity should be greater than 90%.

Packing

Allow flowers to air-dry before packing. Inspect each flower at packing and discard or scrub those with insects. Red ginger stems are packed flat, singly or bunched, in standard or insulated fiberboard boxes or cartons. Single stems are layered in rows in the box. Bunches may be wrapped in a polyethylene film, or moistened, shredded newspaper may be packed around the bunches, with unshredded newspaper separating the layers. Bunches are fastened to the box to minimize mechanical damage due to shifting.

Shipping

To prevent geotropic bending during shipping, it is preferable that the boxes be kept upright, so that the stems are in a vertical orientation. Red ginger should be shipped at > 53.6°F. Because the leaves wilt very rapidly once the flower stem is cut, red ginger is shipped without leaves. Upon arrival after shipping, the basal 2–3 inches of the stem should be cut off and the stems placed in warm water or floral preservative. Holding temperature should be no lower than 59°F.

Vase life

Postharvest vase life varies from 5 days in young flowers (stem diameter < 0.4 inch) to 25.5 days for standard size flowers. Sugar will extend their postharvest life by at least a week. Vase life of pink ginger inflorescences is increased by benzyladenine (BA 200 mg/L) applied as a dip. A 200 mg/L benzyladenine spray extends the vase life of red ginger inflorescence and attached leaves.

Pests and diseases

Field sanitation is part of good pest management for red ginger. Remove all mature flowers from the field regardless of marketability, so that they do not serve as hosts where pests can multiply. Use wide spacing when planting, and keep plants trimmed back to avoid overgrown fields that are difficult to spray. Wide spacing helps prevents easy spread of pests from plant to plant in the landscape. See the table on p. 6–7.

Miscellaneous notes

Hawaiian royalty, the ali‘i, wore garlands (lei) of red ginger in important ceremonies. The Hawaiians would use the stems as medicine to cure stomachaches, grinding them, adding water, and then straining the mixture. Salt and rhizomes were mashed together and used to treat headaches. Dyes from the leaves produced subtle beige and yellow.

Red ginger is used as a landscape ornamental and as a cut flower. Bracts are cut off for lei making. Red ginger inflorescences are widely used in flower arrangements, from cemetery bouquets to extravagant hotel centerpieces. Before arranging ginger stems, cut 2–3 inches from the base, remove any foliage that will be under water, and put in a bath of warm water containing a floral preservative for a few hours or overnight. Do not place floral arrangements in direct sunlight or near heat vents, air conditioners, or drafts. Water and remove dying blooms and foliage daily. To prolong vase life, recut the stem bases every 4–5 days, clean the container thoroughly, and rearrange the remaining flowers, adding a mixture of warm water and floral preservative.

Cultivars (cultivated varieties)

New dwarf cultivars are increasingly popular as container plants and for indoor use. Forms intermediate between the cultivars listed below may also be found. New cultivars are constantly being selected. See the table on p. 8.

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Problem	***Description***	***Symptoms***	***Control***
banana aphid, *Pentalonia nigronervosa*; cotton aphid, *Aphis gossypii*	These small, pear-shaped insects cluster on stems, leaves, buds, bract axils, and flowers.	Aphids suck the sap, causing deformed plants and curled and shriveled foliage. They excrete honeydew, which serves as a medium for sooty mold fungus, which appears as a black coating on the upper surface of the leaves.	Use an insecticidal dip after harvest.
banana mealybug, *Pseudococcus elisae*; citrus mealybug, *Planococcus citri*; longtailed mealybug, *Pseudococcus longispinus*; obscure mealybug, *Pseudococcus affinis*	White, cottony masses are found in the leaf axils, on undersides of leaves, and in other protected areas.	Mealybugs suck plant juices, and heavy infestations will coat the leaves with sticky honeydew.	Applications of soaps and detergents are sometimes effective. Use an insecticidal dip after harvest.
black earwig, *Chelisoches morio*	This shiny black insect is up to 1½ inches long, with long beaded antennae and pincers on its rear end.	Frass and metabolic waste products soil or damage flowers.	Immersion in water repels them; immersion in hot water kills them. Insecticide dips repel or kill earwigs. Field insecticides lower populations. Use of an insecticidal dip after harvest.
cardamom thrips, *Sciothrips cardamomi*	These tiny insects feed on flowers and leaf undersides, in young leaf sheaths, and at basal ends of flower bracts.	Injured areas develop a silvery sheen, becoming a mixture of white, yellow, and brown blotches and streaks.	Use an insecticidal dip after harvest.
soft scales; green scale, *Coccus viridis*; green shield scale, *Pulvinaria psidii*	Scales are sedentary insects that are usually green or brown hard shells attached to the stems or undersides and upper sides of the leaves, often near the midrib. Scales can be found anywhere on the flower, stem, or foliage.	Scales suck plant juices. They appear as raised green or brown bumps (scales), which give stems or leaves a lumpy appearance.	Insecticidal soap works to kill the pest.
marasmius fungus	Causes stalk rot and rhizome rot of red ginger. In Hawai‘i, the fungus attacks the rhizome and causes a brown rot. It feeds on the infected rhizome and grows between the sheaths that form the leaf and flower stalks. When flowers are harvested, the fungus is already present between the leaf sheaths.	A white to brownish mat of fungal growth is visible when sheaths are removed. It attacks rhizomes, causing a brown rot, and causes sheath rots of cut flowers.	It is uncertain whether severely diseased ginger fields can be economically salvaged. Diseased fields should be cleaned, and all old leaves and stalks should be removed from the nursery. Plants that are wilted or dying and rhizomes that are infected should be removed also. Provide the best air movement possible. Trim old sections of the plant and remove shrubs, weeds, etc. surrounding the field. High moisture favors the growth of the fungus.

Problem	*Description*	*Symptoms*	*Control*
root rots	Fungal diseases resulting in root malfunction and decay	Wilting, dieback, stunting, chlorosis of foliage	Develop in poorly drained soils. Have not been major production problem in Hawaii.
nematodes	Microscopic, parasitic roundworms that live in and feed on roots, damaging them and preventing normal uptake of water and nutrients	Poor growth, stunted, chlorotic (yellow) foliage; premature wilting, low vigor, thin canopy, and leaf and/or bloom loss under relatively mild stress; swollen, knotted, gnarled areas on the roots	This pest is becoming more of a problem in commercial production. The goal is to manage their population, reducing their numbers below damaging levels. Incorporate good compost or organic materials, such as manure or wood shavings, into the soil as a preplant amendment to encourage microbial activity to depress nematode populations. Grow French marigold, tilling it in as green mulch. Solarization, the heating of soil by using clear plastic tarps to increase and trap the sun's heat, can be an effective means of controlling nematodes in the soil.

Note: Follow the manufacturer's directions on pesticide labels.

Red ginger in a commercial landscape

Cultivar	***Bract color***	***Height (ft)***	***Comments***
Anne Hironaka	white suffused with pale pink	8–10	Round inflorescence; seedling of 'Jungle Queen'
Darwin series	pink	10–13	Slightly rounded, conical top
Dwarf Pink	light pink	3–4	Glossy green leaves up to 3 ft long and 6 inches wide are borne at right angles to the reed-like stems and have a distinctly lighter-colored midrib.
Eileen McDonald	dark pink	3–8	Elongated inflorescence; aerial offshoots produced abundantly; bract edges easily damaged, causing brownish color; light shade desirable to prevent sunburn of the inflorescences
Fireball	light pink	3–4	Dwarf form
Hot Pink	bright pink	5–6	An excellent pot plant, best suited to a 10-inch pot
Jungle King	dark red; magenta	6–13	Large, rounded, globe-shaped inflorescence; does not produce aerial offshoots; sturdier stems than common red; slow growing; a form of 'Jungle Queen' with red bracts
Jungle Queen	soft light pink	6–13	Large, rounded inflorescence; does not produce aerial offshoots readily; fades in strong light; strong stems; a large, robust plant
Kazu	pink with red margins	8–9	Seedling variant of 'Eileen McDonald'
Kimi (Kimie)	lavender pink; light pink with dark pink margins	4–8	Dark green foliage; short, rounded flower bracts; seedling variant of 'Eileen McDonald'; does not produce aerial offshoots
Pink Princess			Similar to 'Eileen McDonald'; inflorescences tend to produce multiple flower heads with age
Polynesian Princess	light and dark pink, variegated	8–9	Beautiful "candy cane" variegation of light pink borders on a darker pink bract
Raspberry	raspberry red		Feathery bracts; a variant of 'Eileen McDonald'
Red Dwarf	dark red	3–3½	Excellent potted plant with compact, lush foliage
Red ginger	dark red	3–13	Common form with elongated inflorescence; aerial offshoots produced abundantly
Rosy Dawn	bright rose pink	6–8	Dark green foliage; produces abundant seeds and the occasional plantlet; rounded inflorescence with delicate pink bracts
Tahitian (*Tahitian ginger; Double*)	dark red	6–13	Tight, multiple head, torch-shaped; produces aerial offshoots abundantly; large leaves 3 ft by 8 inches wide; flower head large, often 6 inches in diameter, made up of a series of red bract clumps; dense, many-branched inflorescences and red bracts; good in large containers
Tomi Pink	soft pink	6–10	Tips of bracts are white.