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## KING PROTEA

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**K**ing Protea (*Protea cynaroides*) is well known for its majestic appearance and commercial value, presents unique challenges and opportunities in cultivation. Drawing upon existing literature and practical insights, this study focus into the optimal conditions for King Protea production, including soil requirements, irrigation strategies, and pest management practices. Moreover, it examines various propagation methods, such as seed germination, cutting propagation, highlighting their efficacy and limitations in commercial production. Additionally, includes the market trends, shedding light on factors influencing the profitability and sustainability of King Protea cultivation. By synthesizing production-related information, this paper aims to provide growers, researchers, and stakeholders with valuable insights into enhancing the efficiency and viability of King Protea production, ultimately contributing to the growth and development of the floriculture industry.

*Protea cynaroides*, commonly referred to as the king protea, giant protea, honeypot, and king sugar bush belongs to family Proteaceae, stands out as a distinctive member within the Protea genus due to its exceptionally large flower head. This unique plant is widely distributed in the southern and southwestern regions of South Africa and holds the prestigious title of South Africa's national flower (Chang *et al.*, 2023). It displays a variety of color forms and boasts year-round blooming flowers.

**Uses:** Known for its striking appearance, *Protea cynaroides* is highly sought after globally for its exquisite cut flowers, which are popular in both domestic and international markets. With flower heads reaching up to 25 cm in diameter, these blooms have a notably lengthy vase life, making them prized additions to floral arrangements, Dry flowers. Adapted

to survive wildfires, the plant's thick underground stem contains numerous dormant buds that sprout new growth post-fire, further enhancing its resilience (Matthews, 2002).

**Botany:** Botanically, *Protea cynaroides* is characterized by its woody shrub form, featuring thick stems and large, glossy dark green leaves. Mature plants typically reach a height of around one meter, although this can vary based on location and habitat (Leonhardt *et al.*, 1999). The inflorescence is surrounded by vibrant, colorful bracts, measuring between 120 and 300 mm in diameter. Vigorous plants can produce between 6 to 10 flower heads per season, with exceptional specimens yielding up to 40 flower heads on a single plant. The bracts' colors range from creamy white to deep crimson, with the soft, pale pink bracts possessing a silvery sheen being particularly prized (Valente *et al.*, 2010).

Not only visually appealing, *Protea cynaroides* also attracts birds, making it an excellent choice for gardens and a source of nourishment for bees. Additionally, it thrives as a potted plant, offering beauty and interest indoors. However, it's worth noting that some species of Proteas may take 5-6 years to initiate flowering.



*Protea cynaroides*



*Protea neriifolia*

## Species

**King protea (*Protea cynaroides*):** Flowers up to 20 cm in diameter in creamy white or pink.

**Oleander-leaf protea (*Protea neriifolia*):** The bracts of this species are purple-overlaid at the tip and hairy.

**Varieties:** Arctic Ice, Autumn Price, Australis Ruby, Australis Pink, King Pink, King White, Pink Pearl, Venus, White Ruby.

**Soil:** The ideal soil for Protea plants should be light and well-drained, with a pH range between 5.0 and 5.5, leaning towards neutrality or slight acidity. In cases where the soil is

sandy, it's beneficial to incorporate additional organic matter. Heavy clay soil should be avoided as it doesn't provide the necessary drainage (Montarone *et al.*, 2000). Protea plants thrive in soils that are light-textured and allow for efficient drainage.

**Climate:** Regarding climate, protea plants are adaptable to various conditions. They flourish in open, sunny positions and once established, they exhibit resilience to drought (Bezuidenhout *et al.*, 2010). However, they are susceptible to frost and should be protected in frost-prone areas.

**Propagation:** Proteas are propagated from cuttings and seeds.

**Cutting:** Semi-hardwood cuttings, typically measuring 6-10 cm in length and taken from the current season's growth, are utilized for propagation. These cuttings are then treated by dipping them for around four seconds in a rooting hormone solution before being placed in a protected environment. The environment should include sporadic misting and bottom heat set at around 25°C (Rodríguez-Pérez *et al.*, 2009). Once the roots have sufficiently developed, the rooted cuttings are transferred to pots and subsequently planted outdoors either in late autumn (in South Africa) or early spring (in colder climates).

**Seeds:** Only 1 to 30% of the flower heads produce viable seeds, which proves to be inadequate for propagation. The large, hair-covered seeds remain within the mature flower head for up to a year or longer. To ensure their viability, it is essential to treat the seeds with systemic fungicide metalaxyl during storage. Furthermore, these seeds must be sown by the middle of March for optimal results. The best seasons for sowing are spring, characterized by temperatures ranging between 16-22°C, with a notable difference between day and night temperatures of around 12°C.

Before sowing, it is advisable to soak the seeds overnight to enhance germination. The seeds are then sown in open seed beds containing light, well-drained soil. A layer of sand, approximately 1 cm thick or 1.5 times the size of the seed, is spread over the seeds in the seed beds. Additionally, a grid is placed over the beds to protect against attacks from rodents and birds. Germination typically begins within 3-4 weeks after sowing. However, it usually takes four to five years for the plants to reach the flowering stage.

**Planting:** When planting, dig a small pit that is twice as wide as and one and a half times deeper than the pot your plant is in. When placing the plant in the pit, backfill it with soil

until the plant is at the same level as it was in the pot. After planting, cover the base of the plant with mulch. Irrigation should be done weekly to ensure proper hydration for the plant.

**Irrigation:** Until the plant is established, typically by the end of its first summer, water it regularly. Afterwards, continue watering regularly during hot periods only. For plants in containers, consistent deep watering is necessary, but it's essential to avoid overwatering, as waterlogged soil can result in root rot.

**Weeding and Mulching:** Proteas have shallow roots, so it's important to avoid digging around them. Any weeds in the vicinity should be manually pulled by hand. To suppress weed growth and safeguard the shallow roots, organic mulches such as bark, straw, or leaves can be applied.

**Fertilizers:** Excessive levels of plant-available nutrients, especially phosphorus, are undesirable for Protea plants as they are known to be vulnerable to phosphorus toxicity. It is recommended to maintain a maximum Olsen P level of 30 µg/mL, with an ideal target being less than 20 µg/mL.

**Pruning:** To maintain compactness, prune protea plants after flowering. It's preferable to cut the stems back to around 10cm from the main branch. Pruning is typically performed during the spring season.

### Pests and Diseases

Category	Description	Management
<b>Pests</b>		
<b>Protea Beetles</b>	These beetles feed on protea flowers, causing significant damage.	Chloropyriphos (2ml/lit) or Dimethoate (2ml/lit)
<b>Aphids</b>	Aphids suck sap from protea leaves and stems, leading to stunted growth and distorted foliage.	Imidacloprid (0.3ml/lit)
<b>Thrips</b>	Thrips feed on protea flowers and leaves, leaving silvery scars and transmitting viruses.	Imidacloprid (0.3ml/lit)
<b>Diseases</b>		
<b>Root Rot</b>	Caused by overwatering or poorly drained soil, leading to wilting, yellowing foliage, and root decay.	Metalaxyl (1gm/lit)
<b>Leaf Spot</b>	Fungal pathogens cause dark spots on leaves, potentially resulting in defoliation.	Carbendazim (1gm/lit)

<b>Powdery Mildew</b>	Appears as white, powdery growth on leaves and stems, leading to leaf distortion and reduced vigor.	Wettable sulphur (3gm/lit) or Hexaconazole (1ml/lit)
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### Yield

Protea yields up to 18 flowers per plant per year.

### Conclusion

It can be concluded that protea can be used as a promising cut flower and also can be used as a dry flower industry. Also used in different flower arrangements due to its long vase life. Due to its wide adaptability, it can be cultivated easily everywhere and it fetches high price in the market and gives more profits for growers and retailers.

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