

systems must be closely aligned with marketing and distribution systems to enhance supply chain efficiency and market responsiveness.

5.3 Branding and product combination applications

In an increasingly competitive floriculture market, branding strategies and product combination approaches have become essential tools for enhancing the added value of *Phalaenopsis*. Flower color and morphological traits not only determine ornamental quality but also form the basis of brand identity and product differentiation (Gabellini and Scaramuzzi, 2022). As consumer demand shifts from functional to experiential consumption, *Phalaenopsis* products are transitioning from single potted plants to more design-oriented, scenario-based, and product-line-driven offerings.

Different combinations of traits support differentiated brand positioning. For example, white, round, and multifloral cultivars are well suited for “classic elegance” product lines targeting mainstream and premium decoration markets, whereas cultivars with rare colors or distinctive patterns can be positioned as premium or collector’s editions, emphasizing uniqueness and exclusivity (Badriah et al., 2024; Chen et al., 2024). In addition, the cultural symbolism associated with flower colors can be incorporated into brand narratives to enhance emotional value and consumer identification (Nurmalinda et al., 2023).

Product combination strategies further expand the application potential of *Phalaenopsis*. Miniature and multifloral cultivars can be integrated into mixed-planter designs to meet the demands of home decoration and lifestyle-oriented consumption (Gabellini and Scaramuzzi, 2022; Han et al., 2025). Moreover, *Phalaenopsis* can be combined with other ornamental plants or decorative materials to create ready-to-display products that require minimal consumer effort (Fauzia et al., 2023). By integrating trait advantages with branding strategies and product design, producers can significantly enhance product value and broaden application scenarios in the market.

6 Existing Problems and Development Trends

6.1 Current issues

Despite the rapid development of the *Phalaenopsis* industry, significant constraints remain in cultivar innovation and structural optimization, among which the homogenization of commercial cultivars is particularly prominent. Although the number of cultivars on the market continues to increase, most are derived from a limited set of core parental lines. Repeated complex hybridization within similar genetic backgrounds has led to convergence in flower color, flower form, and inflorescence types, resulting in a lack of truly novel trait combinations (Wang et al., 2025a). This phenomenon of “increased quantity but limited innovation” leads to visually similar products in the market, weak differentiation, and reduced attractiveness and competitiveness of new cultivars. In addition, the inefficient utilization of core germplasm resources, characterized by repeated use of favorable traits without systematic integration, further restricts the depth and breadth of cultivar innovation.

At the same time, insufficient trait stability has become a key factor limiting product quality improvement. Flower color and morphological traits in *Phalaenopsis* are highly sensitive to environmental variation, and fluctuations in light, temperature, and cultivation conditions can easily result in unstable coloration, morphological variation, and uneven flowering. In particular, high-value traits such as rare colors and complex patterns often exhibit unstable genetic expression, with segregation, degradation, or weakening occurring across different environments or propagation generations (Wu et al., 2022; Lou et al., 2023; Chen et al., 2024). Furthermore, genetic linkage effects hinder the independent selection of desirable traits, while ploidy abnormalities and cytogenetic instability arising from distant hybridization further complicate trait fixation and large-scale application (Sevilleno et al., 2023; Wang et al., 2025a).

At the production and industry chain levels, issues related to consistency control and supply-demand matching are also evident. Current cultivation practices largely rely on generalized management systems and lack precise, cultivar-specific optimization, resulting in considerable variation in plant growth and flowering performance. Meanwhile, the absence of unified grading standards across the industry leads to inconsistencies in quality evaluation among producers, thereby affecting market efficiency and brand recognition. In addition, while