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(57) Abstract:

The present invention relates to a method for optimizing off-season flower production in Chrysanthemum (Dendranthema x grandiflora Tzvelev) cultivars under low hill climatic conditions. The method utilizes High-Density Polyethylene (HDPE) as a covering material, combined with photoperiod adjustments, temperature regulation, targeted nutrient management, and integrated pest and disease control to achieve superior flowering outcomes. HDPE enhances light diffusion, stabilizes temperature, and promotes earlier bud formation and flowering compared to traditional materials like tarpaulin and black satin cloth. The method also incorporates blackout curtains and LED lighting for precise photoperiod manipulation, along with biostimulants and micronutrient supplementation to improve flower size, weight, and yield. Trials demonstrate significant improvements, including reduced time to flowering (110.74 days), increased flower yield (44.71 flowers per plant), and extended post-harvest vase life (4-84 days). This invention