

عنوان مقاله:

Stabilising urea nitrogen enhances flowering, nitrogen use efficiency, and growth habit for stress tolerance in ornamental plants

محل انتشار:

مجله باغبانی و تحقیقات پس از برداشت، دوره 2، شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 18

نویسندگان:

Sally Wilkinson - *Levity Crop Science Ltd., The Rural Business Centre, Myerscough College, Bilsborrow PR13 9RY, UK*

Anna Weston - *Levity Crop Science Ltd., The Rural Business Centre, Myerscough College, Bilsborrow PR13 9RY, UK*

David Marks - *Levity Crop Science Ltd., The Rural Business Centre, Myerscough College, Bilsborrow PR13 9RY, UK*

خلاصه مقاله:

Purpose: Supplying plants with nitrogen in ammonium nitrate- or urea-based fertiliser is wasteful: much is degraded before acquisition, releasing environmental pollutants. Preventing urea degradation can reduce pollution and improve crop nitrogen use efficiency. We investigate benefits to ureic stabilisation, on flowering and stress tolerance, as organic nitrogen sources favourably alter biomass partitioning in this regard. Research Method: We test effects of adding chemically stabilised urea to soil, on the physical form and flowering of containerised, greenhouse-grown pelargonium, petunia, pansy and marigold, when transplanting seedlings to larger pots. Efficacies of stabilised urea, non-stabilised urea and industry standard fertiliser are compared under identical total nitrogen supply. The significance of treatment differences is calculated using a one-tailed t-test. Findings: Development is favourably altered by ureic stabilisation. Earliest changes measured are increased root lengths, leaf growth rates and chlorophyll concentrations. Plants then develop more shoots and 25-130% more flowers. Improvements arise partially through increased nitrogen longevity in soil, and partially through positive effects of urea itself on biomass partitioning between organs, and on plant physiology; giving rise to improved commercial attributes (more branches and flowers) and tolerance to stress (more root, less apical dominance, more chlorophyll). Research Limitations: Further research could measure leachate nitrogen content, and compare different methods of ureic stabilisation in more crops. Originality/Value: Urea stabilisation can increase fruit and flower yields, whilst reducing vulnerability to erratic climates, and fertiliser-derived pollution. We propose that urea's effectiveness arises because plants have evolved strategies to proliferate whilst competing with micro-organisms for organic nitrogen.

کلمات کلیدی:

Chlorophyll, lateral shoots, organic nitrogen, roots, urea fertiliser

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/944176>



