

Development and Performance Evaluation of a Gladiolus Planter in Field for Planting Corms

Authors : T. P. Singh, Vijay Gautam

Abstract : Gladiolus is an important cash crop and is grown mainly for its elegant spikes. Traditionally the gladiolus corms are planted manually which is very tedious, time consuming and labor intensive operation. So far, there is no planter available for planting of gladiolus corms. With a view to mechanize the planting operation of this horticultural crop, a prototype of 4-row gladiolus planter was developed and its performance was evaluated in-situ condition. Cup-chain type metering device was used to singulate the gladiolus corms while planting. Three levels of corm spacing viz 15, 20 and 25 cm and four levels of forward speed viz 1.0, 1.5, 2.0 and 2.5 km/h was taken as evaluation parameter for the planter. The performance indicators namely corm spacing in each row, coefficient of uniformity, missing index, multiple index, quality of feed index, number of corms per meter length, mechanical damage to the corms etc. were determined during the field test. The data was statistically analyzed using Completely Randomized Design (CRD) for testing the significance of the parameters. The result indicated that planter was able to drop the corms at required nominal spacing with minor variations. The highest deviation from the mean corm spacing was observed as 3.53 cm with maximum coefficient of variation as 13.88%. The highest missing and quality of feed indexes were observed as 6.33% and 97.45% respectively with no multiples. The performance of the planter was observed better at lower forward speed and wider corm spacing. The field capacity of the planter was found as 0.103 ha/h with an observed field efficiency of 76.57%.

Keywords : coefficient of uniformity, corm spacing, gladiolus planter, mechanization

Conference Title : ICABES 2015 : International Conference on Agricultural, Biological and Ecosystems Sciences

Conference Location : Sydney, Australia

Conference Dates : December 10-11, 2015