



A Data Base of Nutrient Use, Water Use, CO2 Exchange, and Ethylene Production by Soybeans in a Controlled Environment

NASA Technical Reports Server (NTRS), et al., R. M. Wheeler

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A Data Base of Nutrient Use, Water Use, CO2 Exchange, and Ethylene Production by Soybeans in a Controlled Environment (Paperback)

By R M Wheeler

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****. A data set is given describing daily nutrient and water uptake, carbon dioxide (CO2) exchange, ethylene production, and carbon and nutrient partitioning from a 20 sq m stand of soybeans (*Glycine max* (L.) Merr. cv. McCall] for use in bioregenerative life support systems. Stand CO2 exchange rates were determined from nocturnal increases in CO2 (respiration) and morning drawdowns (net photosynthesis) to a set point of 1000 micromol/ mol each day (i.e., a closed system approach). Atmospheric samples were analyzed throughout growth for ethylene using gas chromatography with photoionization detection (GC/PH)). Water use was monitored by condensate production from the humidity control system, as well as water uptake from the nutrient solution reservoirs each day. Nutrient uptake data were determined from daily additions of stock solution and acid to maintain an EC of 0.12 S/m and pH of 5.8. Dry mass yields of seeds, pods (without seeds), leaves, stems, and roots are provided, as well as elemental and proximate nutritional compositions of the tissues. A methods section is included to qualify any assumptions that might be required for the...



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