アグリバイオインフォマティクス教育研究プログラム
アグリ／バイオ・センシングと空間情報学フォーラム・セミナー

演題：**Modelling of greenhouse crops** （グリーンハウス作物のモデリング)
講師：*Dr E. Heuvelink, Wageningen University, the Netherlands*
日時：１１月２４日　１３：００－１５：００
場所：農学部７号館Ａ棟　７階　７１７号室（セミナー室）

グリーンハウスの環境制御や作物管理には、作物の成長モデルが有効である。このため、本セミナーでは、作物による光遮断や光合成、呼吸、乾物の器官分配、葉面積成長などのサブモデルとこれらを統合した動的な作物成長モデルについて紹介する。

Crop growth and development models allow integration of knowledge from different disciplines and are valuable tools in research, greenhouse climate control and crop management. A general dynamic crop growth model, with sub-models for light interception, photosynthesis, respiration, dry matter partitioning and leaf area growth is presented and discussed. The fraction of light intercepted primarily depends on leaf area index and light extinction coefficient. Daily crop gross assimilation rate is computed by integration of leaf assimilation rates at different heights in the crop canopy. Crop growth results from daily crop gross assimilation rate minus maintenance respiration rate, multiplied by a conversion efficiency. Dry matter partitioning is simulated, based on the sink strengths of the plant organs. The sink strength of an organ is quantified by its potential growth rate, i.e. the growth rate at non-limiting assimilate supply. Organ appearance rate and development rate are functions of temperature. Fruit abortion is simulated as a function of source and sink strength in the plant. Specific leaf area is described as a function of season only. There is no direct influence of dry matter production on dry matter partitioning. Simulation results for fruit vegetables and ornamentals are presented and the influence of young leaf removal on light interception, partitioning and yield is presented as a case study.