THE COTMAN EXPERT SYSTEM OF COTTON PLANT MONITORING: 1997 UPDATE

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Abstract

COTMAN provides a continuous, in-season method of crop monitoring to assist with achieving timely, early maturation by the use of two components; SQUAREMAN and BOLLMAN. SQUAREMAN utilizes SquareMap data to primarily determine if square retention is acceptible and if plants are developing at an acceptable rate. SQUAREMAN field reports include evaluation of squaring node development, square retention (rates, analysis of change in retention, and comparison to the shed rate limit), plant vigor, population (number of plants and first-position squares) estimates, and crop status compared to the target development curve. The SQUAREMAN farm level report summarizes square shed, plant vigor and nodal development for all fields.

BOLLMAN uses nodes-above-white-flower (NAWF) data to monitor crop development from first flower until the date of the last effective flowering date. The last effective flowering date (cutout) is either determined by crop development ("physiological cutout", NAWF=5) or by weather restrictions ("seasonal cutout", latest possible cutout date). BOLLMAN field reports include crop status compared to the target development curve, mean NAWF and cutout status, heat unit accumulation from cutout, and dates for insecticide termination and defoliation. The BOLLMAN farm level report provides summary tables for NAWF, cutout and heat unit accumulation, and lists fields in order of maturity.

Future plans for COTMAN include expanding educational efforts, refining sampling techniques, further validation of SQUAREMAN and BOLLMAN decision rules, developing additional decision rules (specifically regarding plant growth regulators, irrigation, rate limit for shed and damaged bolls) and developing improved stand and seedling vigor indices.