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Paper:

Modelling Light Interception And Distribution In Mixed Canopies Of Wild Oat (Avena Ludoviciana) And Turnip Weed (Rapistrum Rugosum) In Competition With Wheat

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Abstract:

In order to simulate light intercepted by wheat and wild oat and turnip weed, two field experiments were conducted in agricultural research station of Mashhad University in 2000-2001. The experiments were carried out as factorial in a Randomized Complete Block design with four replications. In the first experiment, the factors included wheat densities at 3 levels (300, 450 & 600 p/m2) and wild oat densities at 5 levels (0, 20, 40, 80 & 160 p/m2). The factors of the second experiment consisted of the same wheat densities as the first one, and turnip weed densities at 5 levels (0, 4, 8, 16 & 32 p/m2). The INTERCOM mode] with triangular leaf area density function was used, instead of parabolic function. The results indicated that leaf area distribution around the canopy has a triangular function and the height of maximum leaf area density depends on the weed species, weed and wheat densities. Either weeds intercepted more radiation than wheat in the upper layer of canopy. Sensivity analysis of model showed that: height, leaf area index, height of maximum leaf area density and light extinction coefficient tare important parameters in light interception by each species.

Keyword(s): COMPETITION, WILD OAT, TURNIP WEED, WHEAT, LIGHT, INTERCEPTION MODELLING