Fayoum University
Faculty of Agriculture

INTEGRATED WEED MANAGEMENT IN SESAME CROP

BY

MOHAMMED EWIS AHMED RADY

B. Sc. in Agriculture Sciences (Agronomy) Fac. Agric., Fayoum, Cairo Univ., 2005
M.Sc. (Agronomy) Fac. Agric., Fayoum Univ., 2009.
Diploma (Plant Breeding) IAMZ, Zaragoza , Spain, 2011.
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THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree of **Ph.D. in Agricultural Sciences (Agronomy)**

Department of Agronomy

Faculty of Agriculture

FAYOUM UNIVERSITY

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ABSTRACT

Two field experiments were carried out at the Experimental Farm, Faculty of Agriculture, Fayoum University at Demo, Fayoum Governorate, Egypt, during the 2013 and 2014 growing seasons to study the effect of integration between two tillage systems (T_1 and T_2), two sesame cultivar (V_1 and V_2) and six weed control treatments i.e., Hand Hoeing twice at 20 and 40 days after sowing DAS (C_1); Pendimethalin 1l/fed., + one hand-weeding at 30 DAS(C_2); Pendimethalin 1l/fed., (C_3); Celthodim1l/fed., (C_4); Fluazifop-p-buty 1l/fed., (C_5); and unweeded (C_6) and their interaction, on growth, yield, as well as yield components of Sesame (*Sesamum indicum* L.) and its associated weeds.

Results revealed that the efficiency of the applied weed management treatments against sesame weeds indicated that no treatments performed better than hand-hoeing twice (C_1) and Pendimethalin 0.75 l/fed., + one hand-weeding at 30 DAS(C_2) in both seasons. These potent treatments controlled 81.04- 58.37% in the 1st season and 91.40- 75.95 % in the 2nd one of the total weeds. Pendimethalin 1l/fed., alone came in the second order and controlled 45.42 and 55.52% in both seasons respectively.

Hand-hoeing twice and Pendimethalin + one hand-weeding were the potent practice for increasing leaves number/plant, leaves fresh weight/plant (g),leaves dry weight/plant (g),stem fresh weight/plant (g), stem dry weight/plant (g) Number of capsules/plant, weight of capsules/plant (g),seed yield/plant (g),straw yield/plant (g) and Seed index (g). Also these potent treatments increase percentage in seed yield than unweeded treatment by 884.5 and 516. 7 % in the 1st season, as well as 669.54 and 475.41 % in the 2nd season, respectively.

Off the two applied herbicides, Clethodim and Fluazifop gave excellent control only for grassy weeds in the first season, but failed to secure satisfactory control efficiency on broad-leaved as well as total weeds. Thus gave a low yield compared to the rest of weed control treatments.
Key words: *Sesamum indicum*; Tillage system; Cultivars, Hand-hoeing; Weed management; Pendimethalin; Clethodim; Growth, Crop yield.