

New aspects in Peanut growing technology by Foliar application of Lactofol “Fe” with decreased pesticide doses

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Rec. 22 May, Accept. 20 July 2010

Abstract

The mixed application of suspension leaf fertilizer lactofol [lac. Fe] with pesticides [herbicides & insecticides] stimulated high control effects, which didn't decrease the weed & insect control affects by reducing the pesticide doses with 12.5 & 25%. The insecticide control was effective against mites when the lac. Fe was used alone without any mitecides. The yield was increased (7.4-28.4%) after treatment with mixed application of lac. Fe and pesticides. The highest yield was obtained (28.4%) when the lac. Fe was mixed with 25% decrease in pesticide doses. These results certified the economic & ecological value of this technology.

Key words: Peanut, Leaf fertilizer lactofol, Pests, pesticides.

Introduction

The applications of suspensions of leaf fertilizer lactofolR with pesticides played an important role in sustainable agriculture [Pavlova 1992]. Using of this element in agriculture in same time insure- leaf fertilizing and success weed and insect control in tomato, potato, French bean & other crops was reported [Velev, 1993, Tailah 1995]. The positive effect of fertilizer lactofol can be explained by decreasing the flowing of pesticides from the leaf surface, increasing the velocity of their penetration in leaf stomata, and stimulating vigorous plants. In this work, the effects of applying of lactofolR (alone and in combinations with pesticides) on weeds and mites control as well as the yield of peanut were investigated.

Material and Methods

This study was achieved, during the period between 1994-1996, at the Experimental Research Station- of Vegetable Growing Department in the Agriculture University - Plovdiv Bulgaria. The study determined the changes in the weed vegetation, weed control and the yield of cv. Peanut Calina. The experiment was carried out as described in Table 1. Conventional hand sprayer was used to apply the different treatments. Weeds were investigated through as follow: annual -number per m², and their fresh weight were scaled per g per m². Mite effects were investigated through calculating the average number of moving juvenile, adults and mite eggs per 10 leaves. After harvesting, the yield in variants was measured and calculated per da.

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Variant	I st treatment phase 3-5 true leaf			II ^{en} treatment in flowering		III th treatment fruiting	
	lact. Fe	Basagran	Fuzilade	lact. Fe	Karate	lact. Fe	Talastar
1				control			
2	600			600			600
3		300	+200		30		30
4	600	+200	+150	600	+20	600	+20
5	600	+250	+175	600	+25	600	+25
6	600	+300	+200	600	+30	600	+30

Table (1) The scheme of the treatments (combinations and doses in ml per 100l water)

Results and Discussion

The mixed application of lac. Fe with herbicides Basagran & Fuzilade showed a positive weed control affects against the annual weeds and *Sorghum halepenses*. The weed control effects varied from 74.4- 83.4% and from 78.9- 86.0% in fresh weight [Table 2]. The data showed that, by mixing application of

lac Fe with 25-12.5% decrease of the pesticide doses or with optimal acaricide doses (var. 4, 5, 6) the weed control was very clear. The mite effect can be carried out by treating the plant with lac. Fe in combined with Talastar 10-EK. [var. 2]. The yield of peanut increased during the experiment period. The highest yield was registered in plants from var.4-[4, 857 t/h] when the yield of the control plants was 3.78 t/h.

variants	annual weeds - number/5m2 by year					fresh weight of weeds- g /5m2 by years				
	1994	1995	1996	1994-1996	Efficienc y %	1994	1995	1996	1994-1996	Efficienc y %
1.	114	77	99	96,7	0	2280	1540	1680	1833	0
2.	89	68	13	56,7	41,4	1755	1245	1310	1437	21,6
3.	26	27	21	24,7	74,4	429	350	380	386	78,9
4.	20	27	5	17,3	82,1	385	310	160	285	84,4
5.	17	24	15	18,7	80,7	335	225	215	258	85,9
6.	16	24	8	16,0	83,4	315	260	195	257	96,0

Table (2) The effect of the treatments with Lactofol Fe and herbicides on the weed's density and their fresh weight (average from three years).

These results confirmed the previous results with other crops (Duncan 1955; Velev, 1993, 1994), and indicated that the mixed application of lactofol with pesticide can be used without any decrease of their effectiveness in spite of decreasing the pesticide doses with 25% [Velev 1994].

Our data showed that combination of lactofol and pesticides was very promising for applying on the peanut. We could not only realize the effectiveness of control but also the use of fewer amounts of pesticides in combination with lactofol to obtained more yield. These results certify the economical & ecological value of this technology.

The highest control effects against weeds and mite *Tetanychus urticae* was combined with the highest yield of peanuts due to the decreasing the flowering of the using pesticides from the leaf

surface, increasing the velocity of their penetration in the leaf stomata and stimulating plant vigorous.

variants	Efficiency							
	after 7 days				after 14days			
	j	a	moving j+a	eggs	j	d	moving j+a	eggs
1.	0	0	0	0	0	0	0	0
2.	92,12	91,16	90,30	94,02	84,33	73,77	80,37	80,54
3.	98,89	100	99,86	99,84	95,79	82,18	93,76	90,45
4.	99,96	99,65	99,92	99,79	89,69	37,26	80,09	53,36
5.	99,58	96,07	99,32	98,73	92,80	54,73	89,07	75,76
6.	99,96	99,66	99,93	99,76	82,23	69,00	76,25	62,13

Table (3) Efficiency of mixes applied of Lactofol Fe and acaricide Talastar 10 EK (calculated by Henderson – Tilton), **Legend:** j - juvenile; a - adults;

The mixed application of suspension leaf fertilizer lactofol [lac Fe] with pesticides [herbicides & insecticides] stimulate high control effects, which didn't decrease the weed & insect control effects by reducing the pesticide doses with 12.5 & 25%. The insecticide control effect

against mites was satisfied, when the lac. Fe as used alone without any mitecides. The results showed us that by the mixed application of lac. Fe & pesticides, the yield was increase with 7.4-28.4% (Fig.1).

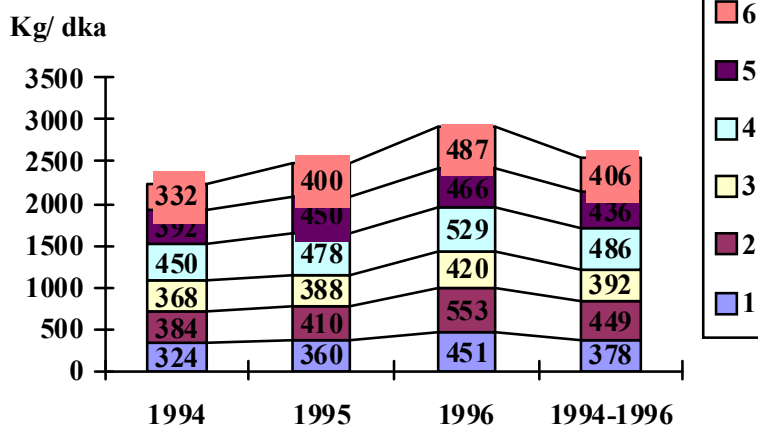


Fig. 1 Peanut yield (nuts) 1994-1996.

The yield increased up to 28.4% when the lac. Fe was mixed with 25 % decrease in pesticide doses.

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