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ORGANIC WEED CONTROL MEASURES APPLIED IN ORGANIC VEGETABLE

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Abstract

Plants that appear in cultures without interest are considered harmful for the production because of its infected potential. For removal the inconvenient of these plants the weeds are removed from the culture. Classical method of eliminating weeds is to dig culture. Also, weeds culture remains useful, without having a density that affects production. In order to improve productivity and product quality have used several methods to remove weeds from solanaceous crops. It is observed the efficiency of chicken associations with tomatoes and heat elimination of weeds.

Key words: *favorable associations, sustainable development, weeds*

INTRODUCTION

According to many scientists weeds are considered undesirable plant species found in soils worked and cultivated crops, which causes some damage expressed by reduction in production and quality. Weeds are considered important components in agrobiopedocenozez [4]. There are situations when weeds be controlled regardless of their weeding as the species commonly called "key weed" (weed Cuscuta, Orobanche), dangerous weeds (creeping wheatgrass, thistles, bindweed, wild mint) are perennial weeds that can fight hard with work of hoeing and hand removal of rhizomes. Beneficial weeds are thistles, clover, legumes spontaneous *Portulaca Oleraceea* [2]. If plants remove greenhouse pests are plants and trees that protect against disease. Action is a result of odor repellent plants, especially the fact that these plants belonging rotting plant debris from the trees and plant-health specific substances are absorbed by the root of the trees and enter into their flow. Therefore the action of these plants is not immediate but after 1-2 years [16]. Control weeds, pests and diseases must be made through preventive means, biological and mechanical. Possible will use the natural ability to inhibit proliferation crop weed [15]. In the years 1990-2000 were identified 706 species of weeds. In certain limits weeds are tolerated and considered partners of ecosystems [6]. Weeding was determined dynamically during critical crop to weed called herb critical period. Based on the number and mass of green weed threshold was considered a weed pest, extent and gravity of weeding number [4]. Preventive methods are the most important agro technical and chemical measures [13]. Only weeds are responsible for a reduction of nearly 34% of crop yield [3, 6, 7]. Processing intensive soil tended to decrease production of lettuce (*Lactuca sativa*) and broccoli (*Brassica oleracea*) in time. Weed density of shepherd's purse and nettle was lower in treatments with compost [12]. Use of herbicides represent one of the most effective weed control measures, but not replaces, nor exclude other maintenance of soil [14]. The same area, in addition to crop rotation is necessary and a rotation of herbicides with a different spectrum of anti [13]. Weed density of shepherd's purse and nettle was lower in treatments with compost [12]. Organic farming involves giving up the application of herbicides, balanced nutrition and correcting soil deficiencies that typically favor the occurrence of such weeds: sedges grow wet, dry ground plantain indicate, daisies grown in poor. The practice of

cultivating plants in the alternative "bio" is based on making the maximum economic and relative fertility of the soil. Without knowledge of qualities and deficiencies in culture took earth and improve the measures to be taken there can be no assurance of economic fertility, relative and constant [11, 17]. The most important works that contribute to weed control soil are: plowing, seedbed preparation, hoeing and weeding. Through a deep plowing perennial weed will be destroyed by cutting and burying them. Annual weed species and the perennial part will be destroyed by the mechanical work energy to destroy weeds - hoeing. To control perennial species take 3-4 mechanical weed [13].

MATERIAL AND METHOD

The land on which experiments were made of 0.40 ha is private property, of which 0.10 ha certified organic, located in southern Muntenia, County Teleorman. Existing weeds in the farm to the study were pig weed, veronica. Plants grown in the field are tomatoes, eggplant and peppers. Fertilizers for strengthening vegetables: Nettle dough (1 kg chopped fresh herb + 10 liters of water is kept in the shade to 4 days fermenting. Use the dilution of 1/20 for ground and 1/10 for spraying plants) and compost weeds (which is done in 4 weeks) [5, 8, 9, 10]. The experimental cultures existing weeds have been disproved by several methods as follows:

- Mowing or pulling weeds before seeds form and its use as a composting material;
- Organic fertilization with fermented compost, good compost has no weed seeds to sprout
- Use of green fertilizers, manual and mechanical works (combines, cultivator, weed whack, rotary brush machine;
- Compliance period optimal crop establishment (establishment date programming according to curve the flight of insects);
- Using weeds biodynamic methods (introduction in soil ash obtained by burning their seeds). It can be mixed with water in dilution of 1:10 or sand or soil to 9 parts of this material. This mixture is applied to prepare the ground on calm days with no wind. Effective treatment will apply for up to 4 years. If there are several species of weeds is recommended production of such preparations for each species. News cultivating sunflower was removed along the rows of vegetables outside the solar not;
- Alternation of winter crops, spring out weeds;
- False sowing (planting bed preparation with 3-4 weeks before setting up its culture and irrigation);
- Weeds that have sprung were removed using a thermal method using a cylinder assembled burner stove. To eliminate their need 6 bottles/ha [8];
- Introduction of successive crops - tomatoes + cucumber

Tomato + beans;

- Alelopatic Tratment, the biological method: + marigold tomatoes, peppers + basil, tomato + cabbage + onion [7].

Method of assessing soil biological activity is done in September to estimate the frequency frames into the soil, the model Balasca - 1993; [2]. There are 4 rectangles 50/10 cm dispersed using blocks and 4 variants, in different soils (conventional and organic). Each rectangle straw were placed 20 pieces 2-3 cm distance and waited 14 days. Then there were the straw moved. Method improvement in humus content was achieved by introducing the culture of leguminous plants (peas) by Badea et al., 2005 [1].

RESULTS AND DISCUSSIONS

Weed control in tomato crop by planting false on 100 sqm, with predominant weeds Veronica, news, *Portulaca Oleraceea* (Table 1).

Table 1. The tratment of weeds through false sowing at tomato culture

	Density of weeds/sqm	
	Experiment	Control
At the rising of control culture	18	26
At 14 days from the rising	29	48
At 30 days from the rising	34	69

At the emergence of control culture, experiences in the field are 18 weeds and control group have 26. At 14 days after culture emergence in the experimental field were 29 weeds and 48 weeds in the control area. At 30 days after emergence were observed 34 weeds in field experience and 69 weeds in control field. After 30 days of control culture springing in the experimental field consisted of 16 weed emergence, while the historical control of 43 weeds were counted in control area. The control of weeds by heat is used as a way to control weeds such pig weed, on an area of 100 sqm (Table 2).

Table 2. The tratment of weeds through heat control of them at tomato culture

	Density of weeds/sqm	
	Experiment	Control
At the rising of control culture	2	32
At 14 days from the rising	6	51
At 30 days from the rising	18	74

At the emergence of control culture in the experimental field was 2 weeds, while the areas of weed control were 32. At 14 days after emergence is observed that the experimental culture are six weeds and the weed control were 51. At 30 days after emergence, weeds were 18 in the experimental field and on the control 74. During the 30 days of experiment, the cultures have emerged weeds in experimental field 16 and 42 appeared to control weeds. Results of flame burning weeds in eggplant culture, area 1000 square meters, at a density of 0.70 cm, depending on the time of treatment in the Table 3.

Table 3. The elimination of weeds with flame burning

Variants	V1	V2	Control
	At 10 days from transplanting	At 20 days from transplanting	
Results	15 weeds/sqm	35 weeds/sqm	30 weeds/sqm

At variant v1 (Table 3) there were fewer weeds as he died some time after planting, germination of all existing weed seeds to light. At a time increased more weeds pop up in square. The variants v1 and v2 were totally destroyed by flame, while the control culture remained all weeds.

Table 4. Consumption of gas flame burning weeds in eggplant culture, area 1000 square meters, at a density of 0.70 cm between rows and 0.40 cm between plants in the row

	V1	V2	Control
Consumption of gas flame burning	15Liters	20 Liters	0
Results regarding the efficiency	91%	87%	0

After burning the weeds by flame (Table 4) was observed that maximum efficiency was achieved in 20 liter gas consumption in 1000 mp. The control was untreated, weeds are growing. Flame burning weeds in eggplant culture, area 1000 square meters, at a density of 0.70 cm, depending on the type of weed, weed type correlated with the existing culture.

Table 5. The elimination of weeds with flame burning at eggplant culture, in correlation with typs of weeds existed in culture

	V1	V2	Control
Weeds	Monocoty-ledonous weeds	Dicotyledonous weeds	Monocotyledonous and Dicotyledonous weeds
Results	78%	88%	0

The percentage of destruction was not 100%, because of the existence of perennial weeds culture. Monocotyledonous weeds were destroyed in the 2-3 leaf stage, because at that time are sensitive to heat (Table 5). Combustion was achieved a temperature of 70-80°C, so that protein coagulates and weeds die.

Table 6. Weed control by biodynamic methods, respectively ash ratio 1:9 with sand or dry soil

Specie of weeds eliminated	Byodinamic methods	Results, procent from total number of weeds existed in control culture
creeping wheatgrass (*Agnopyrom repens*)	Green manure (pea)	80%
gulf (*Convolvus arvensis*)	Monoculture of green beans	72%
veronica (*veronica*)	Sunflower culture	80%

Reproduction of new weeds is inhibited by the introduction into the soil of ash obtained by burning their own seeds (Table 6). This is repeated for 3-4 times in a row. The results show that the percentage of all existing weed

control cultures is reduced by 20% in case of application of green manure (pea) for creeping wheatgrass, 28% in monoculture beans for gulf and 20% sunflower cultivation for veronica. Weeds die only if in the soil is or introduce something that they do not want. Most weeds have medicinal value: plantain, Trast Shepherd. Beneficial weeds are dandelions, clover and other legumes [2].

Table 7. Weed control in tomato crop using association tomatoes with chicken, 200 sqm, with 100 offspring

	Density of weeds/sqm	
	Experiment	Control
At 10 days from the planting	2	154
At 30 days from the planting	3	314
Crop	3 kg/wire	2 kg/wire

At 10 days after planting shows that the field experience are just two weeds, while in control cultures are 154 weeds. At 30 days after planting, the experimental culture - two weeds, which represent 314 compared with control weeds. In 20 days of experiment, test shows that the culture has grown a weed, compared with 160 in the controls weeds. Output gap was a wire tomato kg. Chickens ate weeds, fertilized the culture with a fertilizer rapidly mineralized and mobilized soil around plants [8]. Effects of plant associations are: - better resistance against certain diseases and pests - shelter for useful auxiliary plants - effectively fight against weeds, - enrichment in organic nitrogen by leguminous crops, - enrichment in humus, - the use of groups which act mycosis

CONCLUSIONS

1. Control of weeds by planting false tomato culture reduces the number of weeds from 69 to 34.
2. Weed control by thermal emergence caused a reduction in the number of weeds from 74 to 18.
3. Removing weeds by burning flame is efficient to 10 days after planting. After burning flame weed at a density of 0.70 cm between rows and 0.40 cm between plants, in the row was observed that maximum efficiency was achieved in 20 liters gas consumption in 1000 mp. The percentage of destruction was not 100%, because of the existence of perennial weeds culture. Monocotyledonous weeds were destroyed in the 2-3 leaf stage, because at that time are sensitive to heat.
4. In the case of weed control by biodynamic methods, respectively ash ratio 1:9 with sand or dry soil the results show that the percentage of all existing weed control cultures is reduced by 20% in case of application of green manure (pea) for creeping wheatgrass, 28% in monoculture beans for gulf and 20% sunflower cultivation for veronica.
5. When it is used weed control in tomato crop by association tomatoes with chicken, 200 sqm, with 100 offspring the chickens ate weeds, were fertilized with a fertilizer culture rapidly mineralized and mobilized soil around plants.

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