STUDIES ON METHYL BROMIDE ALTERNATIVES OF STRAWBERRIES IN AYDIN PROVINCE[1]

Seher BENLIOGLU *, Kemal BENLIOGLU, Ayhan YILDIZ, Ozhan BOZ, Galip KASKAVALCI
Adnan Menderes University, Faculty of Agriculture, Plant Protection Dept., 09100 Aydin - Turkey

Sultanhisar town of Aydin province is one of the major strawberry production areas of Turkey. Strawberry is grown as fresh market commodity in early spring and Camarosa, Sweet Charlie and Chandler are the main strawberry cultivars in Sultanhisar. The majority of growers use annual plasticulture production. This system consists of plastic mulch, drip irrigation and soil pest-management treatment. In recent years, farmers has been dependent upon fumigation with methyl bromide (MB) for control of soil born pathogens (*Rhizoctonia solani, Phytophthora* spp.) and weeds.

In 2000, we initiated a sub project for the introduction of alternatives to MB in protected strawberry of Aydin province of Turkey. The main objectives of the project, supported by The World Bank, are: to demonstrate the technical and economic feasibility of alternative pest control methods for MB, to develop and implement a training and extension program and to develop policy majors and information program. We conducted five field trials in different locations of Sultanhisar to demonstrate alternative products (metam sodium and dazomet) and soil solarization to minimize risk of root diseases, weeds and nematodes. The results of three field trials were summarized in this paper.

Soil was prepared by deep cultivation followed by harrowing and light rolling before all applications. The field was irrigated until a depth of 50 to 60 cm was at field capacity and then mulched manually with polyethylene sheets. Solarization dates were determined in consideration of the strawberry seedling planting date in Aydin province. Solarization assays started from 31st May to 5th. June and ended 22 to 25 July. Dazomet and metam sodium were applied between 10 and 11 July with recommended dosage 50 g and 100 ml per square meter, respectively. Basamide were used with special dust sprayer supplied with the pesticide company (Bayer) and metam sodium was applied with irrigation system. Strawberry seedlings were planted at the beginning of August 2000.

The first harvest were done at the 3rd March 2001. We visited to fields 2 or 3 times in every week from the beginning of harvest to 25 June 2001 in order to determine yield. The strawberry fruit yield determined in 3 experimental fields is summarized in Table 1.

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Table 1. Strawberry fruit yield in treatment plots of three fields between 3 March and 25 July 2001

Field No	I		II		III	
Characters	Yield kg/ha	increase (%)	Yield kg/ha	increase (%)	Yield kg/ha	increase (%)
Metam sodium	38690	30.4	53000	23.5	52910	13.4
Solarization	42390	43.0	61660	43.6	47560	2.0
Dazomet	40870	37.8	51590	20.2	50890	9.1
Control	29660		4291		46640	
Plot Area (m^2)	193		175		276	
Cultivar	Camarosa		Camarosa		Sweet Charlie	

Table 1 indicates that treated soil gave always better yield than untreated one. The percentage increase in yield of solarized soils changed between 43 and 44 except 2 % of the third field. The owner of third field grew strawberry on about 4 ha of land and used methyl bromide in his field except our experimental plots. Our control plot was adjacent to the MB treated area. This could be reason why the yield in control plots of this farmer was very close to the treated ones. The effectiveness of MeBr alternatives (solarization, metam sodium and dazomet) to weeds were summarized in Table 2.

Table 2. Effectiveness of applications on dominance weeds in strawberry areas (%)

Field No	Dominance Weed	Solarization	Metam sodium	Dazomet	Observing date
I	*Amaranthus spp.* *Portulaca oleracea* *Convolvulus arvensis* *Cyperus rotundus*	27.0	21.0	35.0	3/10/00
		70.0	69.0	73.0	26/2/01
II	*Amaranthus spp* *Conyza canedensis* *Portulaca oleracea*	42.0	47.0	66.0	26/3/01
		58.0	52.0	20.0	07/5/01
III	*Cyperus rotundus*	23.3	74.0	86.0	28/8/00
	Capsella bursa- pastoris	52.0	69.0	59.0	25/1/01
	Conyza canedensis *Matricaria chamomilla* *Stellaria media*	73.0	53.0	35.0	12/2/01
	Portulaca oleracea *Conyza canedensis* *Cyperus rotundus*	18.0	6.0	58.0	28/5/01

Soil samples were also examined for the presence of root-knot nematode species (*Meloidogyne* spp). No plant pathogenic nematode species were determined in experimental fields.