

The First Occurrence of *Diabrotica virgifera virgifera* LeConte in Bulgaria

I. EVTIMOVA IVANOVA

Department of Entomology, Central Laboratory for Plant Quarantine,
Sofia 1330, 120, Gornobanski blvd, Bulgaria

Western corn rootworm (WCR), *Diabrotica virgifera virgifera* LeConte, is an important pest of maize in the US. Six years ago, in 1992, this pest was first detected in Yugoslavia (Bača, 1993). In the period between 1992–1998, the distribution of WCR was observed in Hungary, Croatia, Bosnia and Herzegovina and Romania. In 1998, the first occurrence of WCR was recorded in Bulgaria.

Keywords: *Diabrotica virgifera virgifera*, western corn rootworm.

In Bulgaria, maize was cultivated on about 450,000 ha during the period of 1997–1998. It is an important crop of our country. Approximately 40% of the maize grown is under a continuous cropping system.

Materials and Methods

The monitoring in Bulgaria was done as part of the FAO TCP/RER/6712 project. In order to determine the occurrence of WCR, pheromone traps and yellow sticky traps (Multigard) were used as the monitoring tools for this project. Traps were placed along the northern and western borders of Bulgaria. Traps were checked ones or twice a week by phytosanitary inspectors of regional services. Also, visual monitoring of WCR was conducted in cornfields throughout northern Bulgaria.

Results

The monitoring in 1998 with pheromone traps and yellow sticky traps (Multigard) for WCR began on 10–12 July. WCR was detected near the northern and northwest borders of Bulgaria. The first WCR adults were collected on 7 August. The final WCR adult was collected on 30 September. Over the 53 days of monitoring, at 16 identified sites, more WCR adults were collected using the pheromone traps. The greatest number of adults was collected in Bregovo (*Table 1*). A maximum number of 6 beetles per 1 pheromone trap per 1 day was registered in Bregovo. A total number of 184 males and females was caught using the pheromone traps and yellow sticky traps (Multigard). One hundred fifty-six males were caught using the pheromone traps; however, the yellow sticky traps (Multigard) only caught 25 males and 3 females. No of WCR adults were visually observed in northern Bulgaria.

Table 1

Results of monitoring *D. virgifera virgifera* in Bulgaria, 1998
(number of captured adults)

Region (city/village)	Number of monitoring sites	Number of adults	Number of adults collected with
Bregovo (city)	2	46	2
Novo selo	2	20	1
Artchar	3	29	6
Vrachka tchuka	4	43	12
Orsoia	2	8	4
Slivata	1	9	1
Lom (city)	2	1	1
Other regions	35	0	0
Total	51	156	28

Discussion

It is possible that WCR adults entered Bulgaria from two countries (directions): Romania and Yugoslavia (north and west). In 1998, the infested area covered 200 km². For the most part, the temperature conditions can be favorable for WCR development (*Table 2, 3*). Moisture, on the other hand, can be unfavorable for WCR development. (*Table 3*).

Table 2

Mean air temperature in the area of Vidin, Bulgaria

Month	Average temperature
June	22.3 °C
July	26 °C
August	29.6 °C
September	18.2 °C

Table 3

The soil temperature at a depth of 10 cm (in the area of Vidin, Bulgaria)

Month	Minimum temperature (°C)	Average temperature (°C)
January	1	2.8
February	0	3.4
March	4	6.4
April	8	13.2
May	15	17.5
June	17	24
October	9	13.1
November	0	6.01
December	-2	0.73

Acknowledgement

The WCR monitoring was done as part of the TCP 6712 A project funded by Food and Agriculture Organization of the United Nations and with the assistance of C. Richard Edwards, FAO Consulting Diabrotica Expert.

Literature

Bača, F. (1993): New member of the harmful entomofauna of Yugoslavia *Diabrotica virgifera virgifera* Le Conte (Coleoptera: Chrysomelidae). IWGO Newsletter, Vol. XIII (1–2), 21–22.