PESTS OF OIL SEED RAPE IN NORTHERN SERBIA

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INTRODUCTION

Oilseed rape is grown on considerable larger acreage in plains in northern Serbia although soil and climate is also favorable in hilly landscape in central Serbia. In the period from 1985 to 2010 acreage under oilseed rape was changed from 25000 ha to 15000 ha. Yield is significantly improved in recent years and is reaching as much as 3 tons/ha. (Stat.yearb.Serb. 2010). It is estimated that potential for acreage increase is directly in connection with need for increased use of renewable fuel resources. Commercial producers(http://www.biodizel.co.yu) estimate that oilseed rape production in Serbia can be realised on up to 20% of the land cultivated by arable crops with a significant increase in hilly areas up to 700 metres above see level in central Serbia.

Pests and diseases play significant role in oilseed rape yield. In Serbia pollen beetle is considered as most important pest of oilseed rape which can reduce yield by 80% (Sekulić and Kereši, 1996). Same authors stated that each year almost all oilseed rape fields are sprayed with insecticides, without being justified. Besides that , Čamprag et all. 2007, Štrbac et all, 2007 considers turnip sawfly – *Athalia rosae* as a second most important oilseed rape pest. Recent studies by Milovanović (2007) and Milovac et al, (2010) presented results of their research on oilseed rape pest in central Serbia and southern Bačka.

This paper is aimed to present data on identity and status of oilseed rape pests from observations which are done during 2010 and 2011 vegetation in fields located in northern Serbia.

MATERIAL AND METHODS

The trial was set up in an area of intensive oil seed rape growing, in the northern Serbia in Stari Žednik. Our experimental field was sown on mid September 2010 which is optimal time by winter oilseed rape. No herbicides were used during autumn or spring. Variety we used for planting our field was Excalibur. Preceding crop was wheat. Sampling of insects started in October as soon as the young plants sprouted. Following methods and tools were used:

Yellow water traps (YWT):

Four traps were placed into the soil of experiment field in 50 m distance from each other. As soon as first pest species such as turnip sowfly (*A. rosae*) and cabbage stem flea beetle (*Psylliodes chrysocephala)* were registered visual observations started. In the spring YWT were used to control immigration of rape stem weevil (*C. napi*), cabbage stem weevil (*C. pallidactylus*), cabbage seed weevil (*C. obstrictus*) and pollen beetle (*M. aeneus*). YWT were placed on holders at which they can be raised up to be always few centimeters above oilseed rape crops. YWT were checked weekly until flowering (BBCH 63).

Beating into trays

Beating into tray sampling is used in the spring to assess the abundance of stem beetles (*C. pallidactylus* and *C. napi*) and pollen beetles (*Meligethes* spp.), but later also *C. obstrictus* on the flower stands of the oilseed rape. As tray a dry YWT is used which is placed below the plant as soon as it was possible to do and depending on the plant height.

Visual checking

During autumn 100 plants on 5 randomly chosen places within field were visually checked for presence of turnip sawfly (*A. rosae*) larvae and adults of stem flea beetle (*P. chrysocephala)*. *P*ods were dissected and number of those infested with larvae of brassica pod midge (*D. brassicae)* were recorded.

RESULTS

Activity of turnip sawfly adults was recorded by YWT. In October was main flight period when we found on average 3 adults of turnip sawfly per YWT. At the beginning of November there was 05, turnip sawfly per YWT and up to the November 10th and later there were no further flight. Visual checking was done 2 times at the end of October and at the beginning of November. We estimated on average 0,1 turnip sawfly larvae per oilseed rape plant which was below threshold number. However, on plants located in 2 out of 5 checked places within field estimated number was close to 1 adult of sawfly per plant. On these spots damages were noticeable but average numbers lead us not to spray.

During autumn oilseed rape crop was checked regularly for shot-holing of leaves and presence of cabbage stem flea beetle (*Psylliodes chrysocephala*) and turnip sawfly (*A. roseae*). Cabbage stem flea beetle is feeding on leaves of emerging oilseed rape seedlings and later on older leaves as well as larvae of turnip sawfly. On YWT recorded activity of cabbage stem beetle was during whole autumn period up to the December when cold winter time started. During period up to 20th October on average there was 4 adults of turnip sawfly, on 1st November – 19,5 adults, on 10th November 19,5 adults and on 30th November 23,5 adults. Visual checking of number of adults of stem flea beetle (*P. chrysocephala*) per meter of plant row was done 3 times with highest estimated number of 0,3 beetle per m of plant row. Leaf area (feeding scars) damaged by stem flea beetle feeding was estimated to be about 10%.

One can conclude that autumn infestation by harmful insects (*A. roseae* and *P. chrysocephala*) was low and there were no need for insecticide spraying.

YWT provided us evidence on *C. pallidactilus* and *C. napi* activity during February, March and April. Maximum number of their adults immigrating into oilseed rape fields was registered at the end of March at a time when the snow melted. Both species were numerous and caught number exceeds thresholds for spraying. Beating into trays confirmed presence of *C. pallidactillus* and *C. napi* in high numbers. So as soon as it was possible sprayer entered the field to apply insecticide (Hlorpirifos + cipermetrin). Spraying was the 25th March.

First pollen beetles were recorded by YWT, visually and by beating into trays. Their number was below threshold as it was estimated twice a week. Moreover, counting of eggs and larvae in the most sensitive period before opening oilseed rape flowers showed that on average there were < 1 imago per plant. First insecticide treatment covered feeding activity of Pollen beetle. Due to low number of beetle, residual activity of applied insecticide and very fast oilseed rape development and beginning of flowering there were no further insecticide treatments.

Assessment of pod damages from *D. brassicae* was done during pod stage of oilseed rape. Obtained results showed that on average 13 % of pods were infested and contained larvae of *D. brassicae*.

Picture 1 YWT trap early in the spring.

Picture 2 Sampling by beating into tray

Picture 3 Experimental field during flowering