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Scientific papers

Maček J. (1977): Listni zavrtači Slovenije. VII. Zbornik Biotehniške fakultete Univerza v Ljubljani, 30, 131—138, Ljubljana.

Maček J. (1979): Listni zavrtači Slovenije. IX. Zbornik Biotehniške fakultete Univerza v Ljubljani, 33, 239—248, Ljubljana.

Spencer K. (1972): Handbooks for the identification of British insects, *Diptera-Agromyzidae.* Royal Entomological Society of London, London.

Spencer K. (1973): *Agromyzidae (Diptera)* of Economic Importance. Series Entomologica, Hague.

Tanasijević N., Ilić B. (1969): Posebna entomologija. Građevinska knjiga, Beograd.

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SOME VIEWINGS ABOUT APPEARANCE AND HARMFULNESS OF LEAF MINER *PHYTOMYZA HORTICOLA* GOUREAU

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Summary

During the investigations done in 1983 we found that many different plants were infested by leaf miner *Phytomyza horticola* Goureau. Infestations with this species were established in the fields and in glasshouses on different localities in Croatia, Slovenia and Serbia.

The highest infestations were noticed on peas in Zadar and Čakovec surroundings, with 2—10 and more mines per leaf. A lot of mines on leaves caused decreasing of assimilation surbace of leaves. In cases of an early infestations losses of yield were expected.

Lower infestations were occured on lettuce and cucmbers in glasshouse on Vransko jezero, and on the young leaves of small radish in Slovenia.

In Serbia leaf miner *Ph. horticola* were found on bigger number of different cultures and on some weeds in the field as it are: peas, lettuce, onion, sunflower, chrysanthenum, *Sonchus oleraceus, Linaria* sp. and so on.

Popov V., Donev K. (1962): Specijalna entomologija. — Zemizdat.

Rao V. P. (1961): Occurence of two more introduced pests in India. — Prot. Bull. 10, no. 1—4, pp. 3—7, New Delhi.

Raubaud E. (1928): Biological Research on *Pyrausta nubilalis* Hb., — Inter. Corn Borer Invest., pp. 1—41, Chikago.

Raubaud E. (1929): Biological research *Pyrausta nubilalis* Hbn. — Inter. Corn Borer Invest., pp. 1—22, Chikago.

Wallace H. A., Bressman E. N. (1949): Corn and Corn growing, 5th edition John Willey and Sons, New York.

Wressel B., Wishaet G. (1959): Note on occurence of *Horogenes punctoriuc* Roman *(Hym. Ichneumonidae)* a parasite of the European Borer, *Ostrinia nubilalis* Hbn., *(Lep. Pyralidae)* in Western Ontario. — Can. Ent. 9: 579—580.

Valenčić Lj. (1977): Utvrđivanje uticaja populacije kukuruznog moljca (*Ostrinica nubilalis* Hbn.) na hibridni kukuruz pokusnog poligona Belje PIK-a (Doktorska disertacija), Osijek.

Vukasović P. (1932): Prilog proučavanja kukuruznog crva (*Pyrausta nubilalis* Hbn.) u našoj zemlji. — Glasnik Centr. higijenskog zavoda, VII god. knjiga XIII, sv. 4—6, Beograd.

Vukasović P. (1947): Prilog proučavanju kukuruznog moljca *(Pyrausta nubilalis* Hbn.) u našoj zemlji. Laboratorijska proučavanja štetnog insekta. — Arhiv za poljoprivredne nauke, god. II, sv. II. Beograd.

Vukasović P. (1953): Kukuruzni moljac i njegovo suzbijanje. — Zadružna knjiga, Beograd.

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SOME CHARACTERISTICS OF THE DEVELOPMENT OF EUROPEAN CORN BORER *(OSTRINIA NUBILALIS* HBN., *LEPIDOPTERA PYRALIDAE)* ON DIFFERENT HOST PLANTS

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Summary

The investigations are aimed at the study of intensity of attack, the population density of European Corn Borer as well as at the development of the second generation of this pest on eight cultivated and on the same number of weed plants.

The results have shown that there exist, among the investigated plants, considerable differences in the degrees of attack and of population density of European Corn Borer in them. Some cultivated plants (corn, hemp and hop) had, in relation to other species, a greater number of attacked plants and a denser population of this pest. European Corn Borer attacked most intensively the hop plants in 1976 (79.01 p.c. of attacked plants with 282 European Corn Borers, recalculated on 100 plants), further hemp in 1975 (59.33 p.c. of damaged plants with 127 European Corn Borers on 100 plants) and corn in the same year (54.80 p.c. of attacked plants with 118 individuals, recalculated on 100 plants). In other research years the intensity of the attack and the population density of European Corn Borer on he above mentioned cultivated plants were lower.

The second group of cultivated plants (millet, mule, sorghum, red pepper and tomato) showed in all the investigation years a weak attack of European Corn Borer. The number of attack plants was below 7 p.c. with a population of 6 European Corn Borers at the most, recalculated on 100 plants. An exception are but the millet plants in 1975, when European Corn Borer damaged 12.10 p.c. of plants of this crop with a population of 13 individuals, recalculated on 100 plants.

The weed plants are less attacked by European Corn Borer than the group of cultivated plants, composed of corn, hemp and hop. However, the common burdock and comon mugwort plants had, in relation to other weed plants, a greater number of damaged plants and a denser population of this pest.

The results have shown apparent differences which are conditioned by the above quoted species of European Corn Borer host plants on the pest's development and the number of generations. Millet, mule and hemp exerted the most marked influence on the development speed of European Corn Borer caterpillars and on the appearance of moths of the summer generation. Particularly the mule plants in 1976, when 39.33 p.c. of the total population of this pest developed without the diapause. Further with the millet plants in the year 18.44 p.c. and with hemp in 1974 14.18 p.c.

The weed plants exerted a more marked influence on the appearance of European Corn Borer moths of the second generation. Especially in 1974, which was more favourable for the development of this insect in relation to other investigation years. In this year, namely, we observed with common mugwort, common burdock and great burdock plants that over 20 p.c. of the total European Corn Borer population had a more rapid development and the appearance of moths of the second generation.

We did not record at all the second generation of European Corn Borer in the group of cultivated plants with red papper and tomato and in the group of weed plants with stinging nettle and thorn apple, whereas we recorded it with pig weed plants only in 1976, but at a low percentage (1.54 p.c.).

FLIGHT PHENOLOGY *OF CYDIA (CARPOCAPSA) POMONELLA L. (LEPIDOPTERA, TORTRICIDAE)*

by

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Summary

Over the 1981—1983 period the flight activity of *C. pomonella* L. moths was monitored in several localities of the SR os Serbia by sex-pheromone trapping and intensity of the attack on the fruits.

The moth flight in the area under observation begins in late April and early May and lasts until mid — September. The flight period lasted 108—135 days, the average flight duration being 121.1 days. The peak flight of the first generation occurred from mid-May till the beginning of June, and that of the second generation lasted in a somewhat wider interval from mid-July till mid-August.

The intensity of the attack on the fruits from protected plantation orchards ranged from 0.01% (Popučke) to 0.59% (Ljubić) and in control orchards without spraying against *C. pomonella* 5.08% in 1981 (Ljubić) to 20% in 1983 (Popučke).

In the Valjevo area the number of fruits damaged was lower that 0.1% in the all years but in the Čačak area number of fruits damaged was 0.08—0.59%.

POSSIBLE ANALOGOUS RESPONSE OF PHYTOPHAGOUS INSECTS TO THE EFFECT OF STRESSFUL FACTORS AND INSECTICIDES

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Summary

The effect of a stressful temperature (45°C) on the behaviour (locomotory activity) and metabolism (activity of protocerebral neurosecretory cells, exygen consumption) of *Ostrinia nubilalis* caterpillars exposed 1, 3, 6 and 12 h to the above temperature, has been studied.

The complex effect of different factors (stressful temperature —23°C, stressful temperature + starvation, stressful temperaturee + starvation + 0.7% solution of KCl, stressful temperature + starvation + + 0.7% solution of KCl + cerebral complex extract) on metabolism (activity of protocerebral medial) (A_1, A_2) and lateral (L_1, L_2) neurosecretory cells, haemolymph trehalose concentration, midgut proteolytic and amylolitic activities) of the cerambycid larvae of *Morimus funereus* was studied.

The effect of the stressful temperature (45°C) on dipausing *O. nubilalis* caterpillars provokes in the first phase of the experiment (10 min.— —2 h) an increase in the activity of the neurosecretory cells, oxygen consumption and locomotory activity. Prolonged exposure of the larvae to 45°C resulted in a decrease in the activity of neurosecretory cells, oxygen consumption and locomotory activity. Fluctuations in the activity of neurosecretory cells (type A — peptidergic neurons) are probably one of the causes of caterpillar's death.

Protocerebral medial (A_1, A_2) and lateral (L_1, L_2) neurosecretory cells of *M. funereus* larvae responded selectively to the complex effect of different factors. The biochemical parameters studied controlled via these cells, show selective response as well.

It in supposed that in phytophagous insects *(O. nubilalis, M. funereus)* exists similar mechanisms of the response to the effect of stressful factors and insecticides. The unocontrolled release of neurohormones (unspecific response) is probably the cause of insect death.

RESISTANCE OF SOME MAIZE INBRED LINES TO PARASITIC LODGING

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Summary

Parasitic fungi frequently cause the rotting and lodging of maize stalks. The dominant species is *Fusarium graminearum* while *F. moniliforme* ranks second. The intensity of lodging depends on a series of factors related to the nature of the attacked plant, pathogen, and the environment. In that respect, the decisive role is played by the degree of genetic resistance of the plant.

A study was conducted in the period 1978—1981 to investigate the resistance of a large number of domestic and foreign maize inbreds, from FAO maturity groups 200 to 600, to stalk rot. Significant differences were found within the examined groups in the degree of resistance to stalk rot in both, inoculated and naturally infected plants.

In FAO group 200, two lines (L-202 and L-210) were significantly better than the group's average (4.75), at LSD 1% and inoculation with *F. graminearum*. In conditions of natural infection, the same lines a significantly lower percent of infected plants in relation to the group's average, at LSD 5%.

In FAO group 300, two lines (L-302 and L-303) were highly significant and one line (L-306) was significant in relation to the group's average (4.35) when inoculated with *F. graminearum*. In conditions of natural infection, the lines L-302 and L-303 displayed resistance above the group's average.

In FAO group 400, the line L-403 was highly resistant (at LSD 1%) and the line L-409 was better than the group's average (at LSD 5%) in conditions of inoculation. In conditions of natural infection, the lines L-403, L-409, and L-410 had the lowest percents of infected plants.

The lines in FAO groups 500 and 600 also differed significantly, no matter if inoculated or naturally infected. Table 3 shows that lines L-501, L-518, L-602, L-607, L-608, and L-609 were most resistant.

Of the total number of 89 examined inbreds lines, from all maturity groups, 14 (about 16%) displayed a high degree of resistance to stalk rot, 27 (30%) displayed intermediate resistance, i. e., above the averages for their groups, and 48 lines (54%) were found to be susceptible.

The degree of resistance increased with the prolongation of the vegatative period with both, the inoculated and naturally infected plants. Each group contained inbreds which were sufficiently resistant to *F. graminearum* to be used as source materials in breeding programs.

THE FIVE-YEAR STUDIES OF THE PHYSIOLOGICAL RACES *ERYSIPHE GRAMINIS* IN THE WESTERN PART OF YUGOSLAVIA (1978—1982)

by

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Summary

Over the five-year period (1978—1982) nine physiological races of powdery mildew were determined as well as nine undertermined isolates (table 2). Also in all these years the occurence of physiological races 75 and 43 together with the unidentified "C" and "D" isolates was reported. Appearance of the new physiological race 64 and unindentified "F" and "G" isolates was also recorded for the first time since work on determining physiological races was started. The most prevaling race was 75 which was recorded in all locations where the samples were taken from and vitrually on all varieties (table 3).

The five sources of resistance to powdery mildew that were most widely used in breeding work, during last three years have turned out to be susceptible to most isolates of powdery mildew (table 4). The ratio of RRRRR and SSSSS reactions have changed towards the susceptibile. Therefore, new sources of resistance ere to be looked for to replace the existing ones in the process of developing resistant varieties to Erysiphe graminis DC. f.sp. tritici Marchal.

INFLUENCE OF HYDROGEN ION CONCENTRATION ON GERMINATION OF *PLEOSPORA HERBARUM* (PERS. EX FR.) RABENH. SPORES

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Summary

In these investigations it has been determined that conidia and ascospores of *Pleospora herbarum* are able to germinate in the media ranging from extremely acid to extremely alkaline, however, conidia may germinate in a somewhat wider range of hydrogen ion concentration — from 3.1 to 9.8 — than ascospores — from 4.0 to 10.0.

The optimum medium for germination of conidia is moderately acid (pH 5.1) and of ascospores slightly acid (pH 6.0) medium.

Within the range of the extreme pH values for germination of conidia and ascospores, the highest percentage of conidia does germinate at 5.1 — 7.1, whereas ascospores achieve the highest percentage of germination at 5.0 — 8.0.

The influence of hydrogen ion concentration on number and growth of initial hyphae of conidia and ascospores is identical with the influence of pH on germination of conidia and ascospores.

POSSIBILITY OF THE CONTROL *VENTURIA INAEQUALIS* BY SISTEMICAL FUNGICIDES AND THEIR SIDE EFFECT

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Summary

— Systematical fungicides applied on leaves and fruits of apple in concentrations as followed, Baycor 0,05%, Rubigan 12 EC 0,05% and Saprol 0,15%, 48 houres after the infection was realized have a good effect on fungus Venturia inaequalis. If the concentration is enlarged by Baycor on 0,1%, Rubigan 12 EC on 0,1% and Saprol on 0,2%, good effect is got on this disease although applied 96 houres after the infection was realized.

— Systemical fungicides, if applied preventively in concentrations as followed, Baycor 0,05%, Rubigan 12 EC 0,03%, and Saprol 0,125% do not achiever better protection for fruits and leaves than preventive fungicide Kaptan applied in concentration of 0,3%.

— To the population of red spider mite Saprol has softly destimulated effect while Baycor and Rubigan 12 EC are neutral.