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USE OF PHEROMON IN CONTROLLING GYPSY MOTH BY
PREVENTING COPULATION

by

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Summary

After the success achieved in applying disparture racemate (\pm) in the formulation of the transmitter according to the technology HERCON (Webb, R. E. et al. 1977, 1978; Bierl-Leonhardt, B. et al. 1979; Bedny, V. D. et al. 1975) was carried out the first experiment in 1978, in the forest named Pljošta near the village Belosavci (SR Srbija) on an area of 2.8 ha.

The transmitters had the size of 6.45 sq cm with a 26 mg dose of dispartlure racemate. The installation was effected by hand before the flight of males in 1978 in intervals of about 5 m by pinning them with a needle into the bark of the trunk at the height of 1.3 to 1.6 m. Altogether were installed 800 transmitters or 285.7 average per/ha of forest.

The result of preventing the males from copulating has been established on the basis of the number of egg clusters on 5 experimental plots (20 × 20 m) before the hatching and after the hatching in two generations. In the check forest called Živanovića zabran, with an area of 2 ha, were situated 4 experimental plots, where simultaneously was being established the number of egg clusters. In order to make the discovery of egg clusters more certain, the experimental plots were cleared of undergrowth, shrubs and lying refuse of wood.

The result of application (Tab. 1) was positive. In the experimental forest were found 3 tiny egg clusters containing from 20 to 80 eggs in which no embryonal development of caterpillars had taken place. In the second generation of 1979 not a single egg cluster was found. In the check forest was found no egg cluster before the experiment had been carried out and after that the population increased and in the second generation of 1979 it reached 31.25 egg-clusters on an average per ha.

The transmitters used were manufactured in 1977 and held for one year at the temperature of 5°C which did not diminish their effect.

vlakna oko sporoplazme kao i uglu kojeg čini polarno vlakno u odnosu na dužu osu spore. Ovi podaci će se koristiti prilikom upoređivanja *Nosema* vrsta prvenstveno kod *Lymantriidae* a zatim i kod drugih insekatskih vrsta.

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MICROORGANISMS-ENEMIES OF THE COMMON EUROPEAN GOLD TAIL

Microsporidia-ultrastructure and internal construction of the spore *Nosema* sp.

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Summary

Investigations on the ultrastructure of spore of *Nosema* sp. from common european gold tail (*Euproctis chrysorrhoea* L.) showed that this spore have a similar composition as the other *Nosema* spp. But there are differences such as the number of coils of polar filament around the sporoplasm as well as the angle which polar filament make with medial longer axis of the spore.

THE RESULTS OF INVESTIGATIONS OF THE APPEARANCE AND NOXIOUSNESS OF INSECTS ON RAPE IN YUGOSLAVIA

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Summary

The rape is in Yugoslavia attacked by many insect species. Some of them causes heavy damages due to which the yields until the year 1961. were very low and variable. From the year 1961. on, the rape growing was concentrated on big farms only, where conditions were favorable to the appearance of some until then unimportant species. A survey of insects nuisibles to rape in Yugoslavia is given.

The most important pest is the rape blossom beetle *Meligethes aeneus*. Because of different opinions about the nuisibility of this insect some investigations to establish the relationships between time and intensity of attack, the damage caused and crop yield were done. The decrease of yield caused by an very early artificial infection of plants with 5 insects on one florescence compared with uninfested plants was 53,8%. In an other trial the difference in yield between plants treated with an insecticide at the moment when 3,3 insects were present on every florescence at the begin of differentiation of buds and untreated plants was 14,6%. These results confirm that when the florescences are attacked at a very early stage (when they are covered with terminal leaves) the threshold which indicate that an insecticide treatment is needed is about one insect on one terminal florescence. When the buds are beginning to differentiate themselves then the threshold increases to two or even three per florescence.

Some insects which attacks pods, i.e. *Ceutorrhynchus assimilis* and *Dasyneura brassicae* are increasing their appearance. In 1980. a hymenopterous parasite of larvae of *C. assimilis* was found, the wasp *Mesopolobus morys* (Walker).

Data concerning *Psylliodes chrysocephala*, *Ceutorrhynchus pici-tarsis*, *C. napi*, *C. quadridens*, *C. pleurostigma*, *Athalia rosae* and some other insects are given also.

INVESTIGATIONS OF THE POSSIBILITY OF A COMPLEX PROTECTION OF SUGAR BEET PLANTS DURING THE FIRST PART OF THEIR DEVELOPMENT

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Summary

The systemic soil insecticides used in these investigations carried on mainly in field conditions, i.e. phorate, carbofuran, terbuphos and sometimes abdicarb too in most of our trials showed a satisfactory action comparable to the action of similar contact soil insecticides in protecting plants against wireworms. Besides, because of the broad spectrum of action of these systemic insecticides, a good protecting action was achieved against nematodes also. But these investigations were primarily carried on to establish the effect of plant intoxication by systemic insecticides in order to protect the above ground part of young plants against flea beetles, weevils, aphids, and even caterpillars of Noctuids. The results were very satisfactory in spite of some difference in efficiency of the used insecticides.

The idea of such complex protection of young sugar beet plants by using only systemic soil insecticides, especially carbofuran and phorate, is now prevalent in all big farms of Croatia where the use of systemic microgranulars is about 78—80% of the total use of microgranular insecticides on sugar beets.

THE GENUS PSYLLA (HOMOPTERA, PSYLLIDAE) PRESENCE ON PEAR TREES IN SERBIA (YUGOSLAVIA)

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Summary

The four years investigations of pear psylla species presence in Serbia, have given the results as follows:

1. On pear trees are found *P. pyri*, *P. pyrisuga* and *P. pyricola*. The first two species are present in all region of Serbia, but *P. pyricola* was found only in extensive pear orchards in the region of south and south-easters part of Serbia.

2. The species *P. pyri* is the most numerous on pear trees in big modern plantations. It does very high damage in spite of intensive control mesures. It is present on pear trees all year around except during cold winter days.

3. *P. pyrisuga* is almost omnipresent but low in number and does not make damage of economic importance. The adults are present on pear trees throughout the period of March — June.

4. *P. pyricola* is not present in modern intensive pear plantations (except few samples) but only in extensive pear orchards. Adults number is low and makes no damage on these trees. Period of adults presence on pear trees is like *P. pyri*.

5. The comparison of adults number showed persistently high level in intensive pear orchard, but very low in extensive. This is in direct correlation with the level of damage.

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METHODS OF STUDY OF FUSARIUM INFECTION IN CORN BREEDING PROGRAM

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S u m m a r y

In the period 1976 — 1978, three methods of inoculation with *F. graminearum* were examined in order to evaluate their applicability in a program of development of corn inbreds and hybrids resistant to Fusarium rot of stalks and ears.

All methods (naturally infected wheat grains, suspension of spores, and toothpick method) showed satisfactory efficiency. Although the last method was most efficient, it has a shortcoming — plants are seriously injured and frequently an intensive infection occurs on a practically resistant breeding material. In other words, the obtained picture of corn inbreds and hybrids resistance is not realistic. The method of naturally infected wheat grains is more suitable because the uniformity of inoculi may be achieved by classifying wheat grains according to the degree of infection.

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EMINATION RESULTS OF MAIZE POWER OF RESISTANCE TO HELMINTHOSPORIUM CARBONUM ULLSTRUP

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Summary

In the period of 1977 and 1978, power of resistance examinations of 70 inbred lines and 39 maize hybrides to *H. carbonum* has been done.

Examinations are performed in artificial conditions of plant inoculation in the field.

For the leaf inoculation was used the suspension prepared of the pure culture *H. carbonum* and for sock and ear inoculation the method of toothpick.

According to received estimations of leaf disease intensity, of stock. And ear sigly plants, indexes of diseases have been got and putted in the Table 1 and 2 as the average values of both years as well as the recede of those values in 1977 and 1978 ($m \pm m$ or $M \pm m$).

Inbred lines and hybrides showed the significant differences in expressing resistance not the leaf only but the stock and ear of maize too.

The hybrides expressed more resistance comparing the lines, so they are most frequently considered in mutual comparison that would make possible their resistance classification.

Inbred lines showed the significant variables in expressing symptoms on the leaf.

In accordance with the expressed differences 5 characteristic symptom types are separated that could be indicators of the resistance stage of the maize leaf to *H. carbonum*.

The lowest index of the leaf disease has been found by the lines BS-45/2, V-395/34 and ZPL-71 o₂ and hybrides ZPSC-1, ZPSC-1A, ZPTC-75, ZP-755, ZPTC-58, ZPSC-46A and ZP-73 ob.

Selection material expressed less stock resistance to *H. carbonum* than of leaf.

More than 50% examined lines and hybrides expressed medium sensitiveness.

Line Mo-17 and hybrides ZPSC-1 and ZPSC-1A were the most resistant to rot of the stock.

By the TC hybrides rised resistance differences of the single plants are the effects of nonhomozighotic components as the characteristic of the stock resistance.

Numerolis lines (47%) and hybrides (82%) expressed high resistance to the ear rot.

The lines L-172, T-72, ZK-4722/AA, R-319, K-41, ZK-1533, BS-45/2, T-768 and K-44 and hybrid ZP-73 ob could be separated as very well resistant.

Yet not established resistance correlation of the leaf and stock, leaf and ear, and stock and ear.

THE RESULTS OF SOME WHEAT AND BARLEY DISEASES CONTROL
AT IPK OSIJEKI. Šilješ
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S u m m a r y

There is no need to point out the significance of wheat production not only for our Agro-industrial complex, but our country as well, particularly now when man speaks about 30—40% in crop rotation. Very important position in our production is occupied by barley production. The returns from these productions actively influence the total returns of IPK Osijek. Thus, the plant protection service has got an important role from planting to harvesting date in establishing and elimination the negative biological agents that limit high yields achieving (weeds, disease, pests).

When we consider diseases, we have been observing the sensitivity of single varieties to various diseases for many years during the growing period. Last two years we have been performing the trials of controlling *Erysiphe graminis* on wheat and barley, as well as *Rhynchosporium secalis* on barley.

In two year's trials we have found that Bayleton treatment is very effective against the above mentioned diseases on wheat and barley. Two treatments with this fungicide, in two year's average, resulted in improving the yields in relation to control by 8,95 mtc/ha. One treatment realized the difference of 5,18 mtc/ha.

Trials on barley, with one treatment output, indicate positive difference in relation to control of 7,34 mtc/ha.

Our trials have shown that Yugoslav breeders do not pay enough attention to creating the natural resistance of varieties, neither on wheat nor barley, for after we have been observing the infestation intensity in several years, an indication appears that we have not got a single variety of these crops, being not more or less sensitive to mentioned diseases.

INVESTIGATION OF FUNGICIDES BASED ON PROCYMIDON,
VINCHLOZOLINE AND IPRODION FOR THE CONTROL
OF THE CAUSERS OF GREY MOULD OF GRAPES
(*Botrytis cinerea* Pers.)

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Summary

In the period of three years were carried out the investigations of botrycide properties of fungicides based on procymidon, vinchlozoline and iprodion as well as on other standard fungicides.

The investigations were made in two localities (Banatski Karlovac, Niš) and on two grape sorts (Sémillon and Riesling). The experiment was laid according to the randomized block system with 14—20 grapevines in repetition. The application was carried out by means of the back atomizer with a consumption of 300 l of liquid per hectare. In each year were performed three treatments, to wit: at the time of the fading, of grape closing, of the appearance of the colouring on berries and approximately 28 days before the vintage. The estimate was done by the inspection of 100 grapes in repetition according to the scale from 0 to 10.

According to the results of investigations the greatest efficiency was manifested by the fungicides based on procymidon and vinchlozoline, and a somewhat less one with the pronounced variability those based on iprodion.

With other standard fungicides the efficiency was at the level of previous results, but we only established the decrease of the efficiency of benomyl to the parasite *B. cinerea*.

POWDERY MILDEW (*ERYSIPHE CRUCIFERARUM* OPIZ. EX JUNELL) AND
ITS HYPERPARASITE *AMPELOMYCES QUISQUALIS* (CES.)

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S u m m a r y

Powdery mildew (*Erysiphe cruciferarum*) was observed on cabbage cv. Predena F₁. The first signs of powdery mildew were noticed at the End of August at Tinj close to Biograd n/m. Symptoms mainly consist; patches of thin mealy mycelium on the upper surface of the leaves. These gradually coalesced until the great part of surface was covered with pathogen. The presence of *Ampelomyces quisqualis* (Ces.) hyperparasite of cabbage powdery mildew was occurred in September. Morphological characteristics of parasite and hyperparasite was described.

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POLLUTION OF THE SOILS OF THE SR OF SERBIA (FARMING CULTURES AND ORCHARDS) WITH STABLE PESTICIDES

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Summary

There were analyzed the residues of stable pesticides in the soil samples taken in 20 localities of Serbia proper. Considering different conditions of cultivation (soil tillage, number of treatments, the applied quantity of pesticides, etc.) particularly analyzed were the residues of pesticides in the soils under the farming cultures and from the orchards.

Qualitative and quantitative determination of pesticide compounds was made by the application of the method of gas-liquid chromatography.

The analyzed have shown that the analyzed samples contained the residues of insecticides from the group of chlorinated hydrocarbons. It was, also, shown, that the established quantities of residues in the soil samples from the fields under farming cultures were about 10 times smaller than those which were found in the samples taken in the orchards.

α -HCH and Lindane were established in all analyzed samples and the quantities found generally do not exceed 10 ppb. Aldrine and Dieldrine were found in a few samples, and the quantities established varied up to 4.0 ppb (farming cultures) resp. up to 5.0 ppb (orchards). Heptachlorine and heptachlor-epoxyde were not established in any of the analyzed samples. DDT and its metabolites DDE and DDD were found in 23—28 p.c. of samples from farming cultures and in more than 50 p.c. of samples from the orchards. On an average, the established quantities of DDT and of its metabolites are larger than the quantities of remaining compounds and in the soil samples from farming cultures vary up to 28.4 ppb, and in the orchard samples up to 83.6 ppb.

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DIE ANWENDUNG DER WACHSTUMSREGULATOREN AN NICHT
LANDWIRTSCHAFTLICHEN OBERFLÄCHEN

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Z u s a m m e n f a s s u n g

Auf Grund der durchgeführten Untersuchungen über Wuchshemmendenwirkungseffekte von Malepin und CF-125^(R) wurde folgendes festgestellt:

1. Die Präparate Malepin und CF-125^(R) können wir als Wachstumsregulatoren an nicht landwirtschaftlichen Oberflächen (längs der Autobahnen, Dämme usw.) anwenden.
2. Wegen sinergetischer Wirkung wurden die besten wuchshemmende Resultate mit der Kombination von Malepin und CF-125^(R) (10 l + 12,5 l/ha mit 600 l Wasser pro 1 ha) gewonnen.
3. Die wuchshemmenden Wirkungseffekte waren bei den angegebenen Präparaten nicht bei allen Arten gleichmässig.
4. Mit der Anwendung der Wachstumsregulatoren können wir die Zahl des neuen im Laufe der Vegetation reduzieren und dadurch die Aushaltungsausgaben ziemlich vermindern.

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BACTERIAL DIEBACK OF APRICOT

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Summary

On account of its pronounced aggressivity and the frequent occurrence of the species of *Ps. syringae*, the cause of the bacterial dieback of apricot is a very important parasite of this fruit species in many regions where it is being grown.

Parasitizing the cambium and the phloem, in the course of the resting period of apricot, this bacterium causes the changes of the canker and dieback type of individual branches or of the entire fruit trees. The low winter temperatures accelerate, in addition, the already initiated process of necrosis of the above mentioned tissue.

In the course of summer the apricot tree manifests the resistance to the parasite, and the bacteria die out in the diseased tissue. The remaining population of bacteria maintains itself epiphytically on the leaves, without causing any changes on them.

Different injuries, particularly those caused by the pruning of apricot trees, are of a decisive importance for the intensification of the spread of the parasite. Therefore, as one of the most important control measures is recommended the pruning of fruit trees in spring, instead of the usual winter pruning.

The choice of soils of northern and northwestern exposures in raising the plantations is also to be recommended, as well as the treatment of apricot trees with the preparations based on cuproxychloride in the resting period of fruit trees.