INTEGRATED CONTROL OF THE GRAPES GREY MOULD PRODUCED OF *BOTRYOTINIA FUCKELIANA* (OF BARY) WHETZEL, C.F. *BOTRYTIS CINEREA* PERS IN THE VINEYARDS MURFATLAR CONDITIONS

COMBATEREA INTEGRATĂ A PUTREGAIULUI CENUȚIU AL MSTRUGURILOR *BOTRYOTINIA FUCKELIANA* (OF BARY) WHETZEL, F.C. *BOTRYTIS CINEREA* IN CONDIȚIILE PODGORIEI MURFATLAR

FILIP I., FLORICA GULUȚĂ
Research and Development Station for Viticulture and Winemaking Murfatlar

Abstract. *The grape grey moulds, produced by fungus Botryotinia fuckeliana (of Bary) Whetzel, c.f. Botrytis cinerea Pers., is consider beside by downy mildew and powdery milew most prejudicial complaints of vine. In favorable years, with precipitationes in excess, chiefly in second half summers, damage catch up to 70-80% from production and just besides.*

In period 2003-2007 we tried in the frame experiences of RDSVW Murfatlar, some schedules of integrated pest management control. They have demonstratet in a first row that decrease number of treatments for the grapes grey mould frecvently utilized in production, mixted (biological preparates on the strength of Trichoderma harzianum) with diverse selective chemical fungicide don't arise rezidium problem, on grapes and in wine and prevent botrytis attack.

Rezumat. *Putregaiul cenusiu al strugurilor produs de ciuperca Botryotinia fuckeliana f.c. Botrytis cinerea este considerat alaturi de mana si fainare unul dintre factorii importanti ai pierderilor de recolta la vita de vie. Astfel, ca in anii favorabili cu precipitatii in exces mai ales in cea de-a doua parte a verii dijmuirea recoltei de struguri poate ajunge pana la 70-80%.*

In perioada 2003-2007, am incercat la SCDVV Murfatlar cateva scheme de combatere integrate a acestei ciuperci pe soiul Sauvignon. Experimentarile au demonstrate in primul rand ca tratamentele antibotritice reduc frecventa atacului, iar amestecurile de preparate biologice pe baza de Trichodermma hartianum cu fungicide chimice selective nu ridica probleme de remanenta a reziduurilor pe struguri sau in vin si previn in mod evident atacul.

MATERIAL AND METHOD

Field tests.For the realization of some result regarding integrated control of grapes grey mould at RDSVV Murfatlar, during 2003-2007 observations were much on 500 grapes for each experimental variants of different research laboratory for instance – agrotechnick, agrochemistry, irrigate before grape with 1-2 days to follow evolution of botrytis attack.

The experiments were mode on Sauvignon variety. On the follow experimental variants observations were mode.

Agrotechnical – plants notes were mode regarding Botrytis attack in 4 variant: clossicat conduct on 1,5/1,2 m distances; classical conduct on 3/1,2 m distances, semiconduct on 2/1,2 m and conduct on 3/1,2 m and in the experimental variants in green workes it was notated Botrytis attack at partial leafless of 25% of leafs in the grapes area, 2 turies leafless and the ripering of variety with 2 week before harvest.

Agrochemistry – soil fertilization – was natural Botrytis attack in 4 variants: rother 50 to/ha; N/P/K – 100/100/100;N/P/K – 400/400/400; spring culture between heans with harley and for fertilization in 4 treatements with Greenzit NPK single without fitosanitary treatments.In the frame on experimental variants of irrigation, observation about grape's grey mould attack regarded 3 methodes of irrigation for instance: through ploughing, aspersion and dripping. This experimentation had also a variant for control untrateadet.

In the frame of Plant Protection laboratory, during 2002-2006 it was teasted biological action of some fungicides the chemical and biological control of grapes grey mould. Each year the experiments had also some plantes untrateated antibotrytic. In all years of the location experiements had a Sauvignon variety in randomizated placement, with 5 repetition coming each 50 blocks of each variant, on a surface of 100 mp. Plantation is was situated on the production background and is semihigh drived with distance between plantas of 2/ 1,2 m.

Treatments were executed by handwork with a pump screams Calimax with 10 liters solution/ 100 mp. The application of these treatement was mode adhibition each year at 4 phenologic standard moment: A - immediately after flowery, B - grape's chuster, C - ripporing, D – before harvesting with 2-3 week.

Date's of treatements application was: 13. 06; 02. 07; 12. 08 and 02. 09 in 2003; 19. 06; 11. 07; 01. 08 and 27. 08 in 2004; 18. 06; 07. 07; 13. 08; 03. 09 in 2005; 17. 06; 13. 07; 18. 08 and 27. 09 in 2006 and 15. 06; 18. 07; 06. 08; 17. 08 in 2007.

The grapes gray mould attack noting was in the scale 0-6 on cca. 500 grapes each variant with 1-2 days before beginning hardvest. With these dates was calculated of attack degree on each variant and obtained values stated to the interpretation of results. For a good evalue of using fungicides it was calculated through Abbott formulate the interest efficacity (E) against untratated of control in each year of experimentated.

$$E = \frac{\text{G. A.\% untratated control - G. A.\% at variant X 100}}{\text{G. A.\% at untratated control}}$$

RESULTS AND DISCUSSIONS

Control of pathogen with cultural practices.

Cultural practice represented all the tehnologies applied to the total amount to soil or plant following interrupted contact between pathogen and plant. Cultural practice contain main measures to prevent attacks of pathogen by diminuation pests and deseases population, and increasing the resistence of vine species, much as introduction of new sortes more resistences to pests and pathogen attack.

Rational nutrition of wine has a very big importance. This can determinate a better development of plants which can opposite good resistence to attack. It's also know that excessive nutrition with nitrogen can produce predispositions at attack white potassium and phosphorus can have the viceverse effect.

In modern viticulture conduct of water is very importance regarding pest and pathogen attacks. Irrational irrigation often may increase the danger of pests and diseases attacks. Cultural practice of plant, control of weeds, plantation distance and different conducting form. Green works are means through we can prevent attacks of pathogen. Cultural practice apparently complicate less concrete has the adventage to be chaper, unpoluated and without secondary effect on humans been and environment.

Observations made in Murfatlar vineyard during 2003-2007 taked in experimental variants from Sauvignon sort in parcele with untrateated plant (fig. 1) explain that the attack of grapes grey mould is bigger at classic conduct of vine with small distances between rows and also at bigger dosess of fertilizer specially with nitrogen (fig. 2), and the using of furrow and dripping irrigation (fig. 3), systems and methods witch assure in general a favorable microclimate for the deseases development.

Worthily remark, green works (fig.4) like: leafless applied in two stages until total grapes leafless at Sauvignon sort where assure a substantial reduct of the grapes grey mould in comparision with untreatated variant.

Efficacity of cultural practice on the grapes grey mould calculated through About formulate on superior valuee of 50% only in variants who assurea a good aeration and lightning of vine fruits.

Looking over the dates from figure 5 who represented efficacity in field of some fungicides in control of grapes grey mould we can established at the beginning of the experimental years that only 2004 and 2006 they acived the best attacks on Sauvignon variety in the natural condition of infection. So, at the untreateated plants in the 2004 year, the grapes grey mould had the degree of GA was 34,3% and in 2005 the degree of GA was 24%.

Regarding the fungicides efficacity these reduced siminificatively almost years the *Botrytis cinerea* attack.

Remarked at the beginning a very good efficacity up to 80% on biological fungicide Trichodex WP based on the Trichoderma harzianum at doses of only 2 kg/ ha.

Among chemical fungicide is detached Switch 62, 5 WP fungicide at the doses of only 0,6 kg/ ha realised in all the year of experimentation values of efficacity was up to 90% after the 4 standard treatment application (A, B, C, D).

Follows in order synergic mixture like: Calidan SC at 2 kg/ ha, Konker at 1,5 kg/ha and Pyrus at 1,5 kg/ha with superior efficacity value up to 80%. It maintains in the forwards a good f efficacity up 80% with fungicides with contact actions like: Rovral 50 SC at 1,0 kg/ha, Ronilan 50 DF at1,0 kg/ha and Sumilex 50 Fl at 1,0 kg/ha which improved the conditions form like as intent suspension. Produced Mythos to 3, 0 kg/ha and Teldor 500 SC at 0,8 l/ha don't raised efficacity in all the years of experimentations more then 80%.

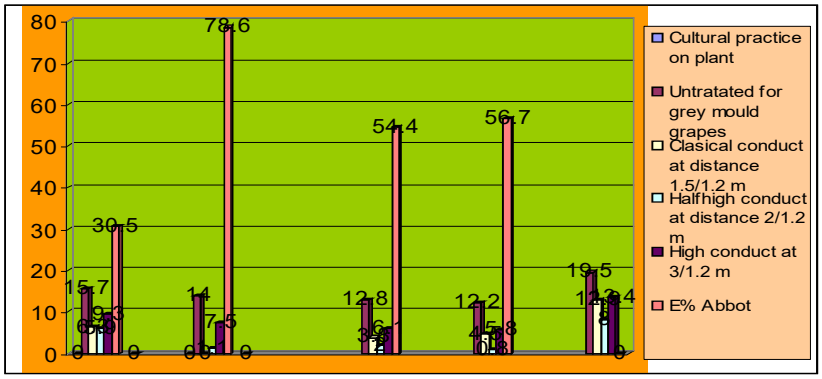

Fig. 1 - The influences of conduced forms and plantation distances about the grey mould grapes attacks in Murfatlar vineyard, in untreatated parceles, on Sauvignon variety

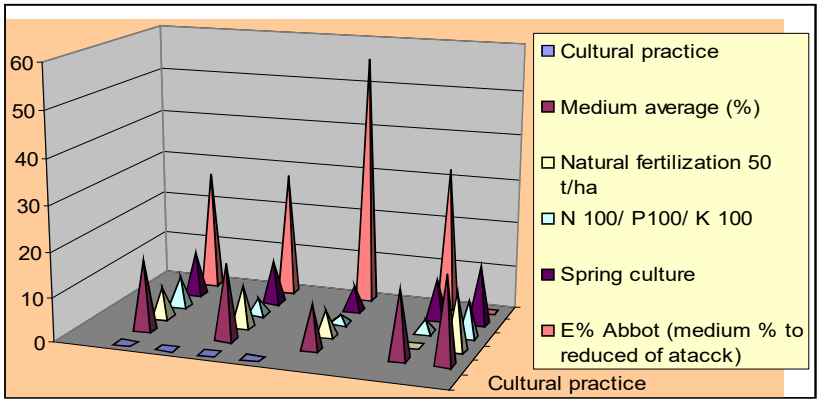

Fig. 2 - The Influence of different of types and doses of chemical and natural fertilizers the about grey mould grapes attacks in Murfatlar vineyard, in untreatated parceles, on Sauvignon variety

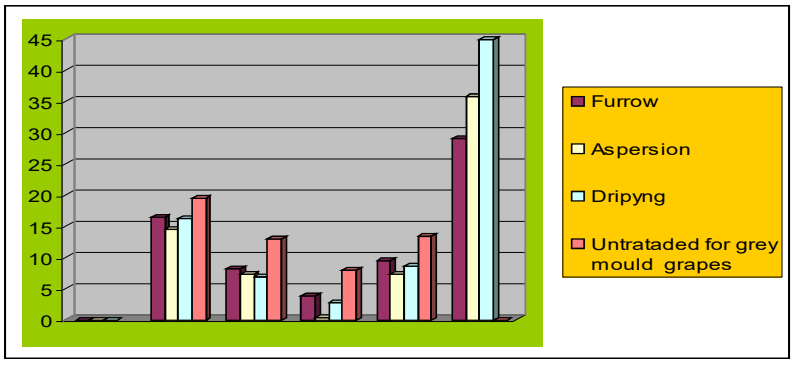

Fig. 3 - The Influence of different of method of irrigation about the grey mould grapes attacks in Murfatlar vineyard, in untreatated parceles, on Sauvignon variety

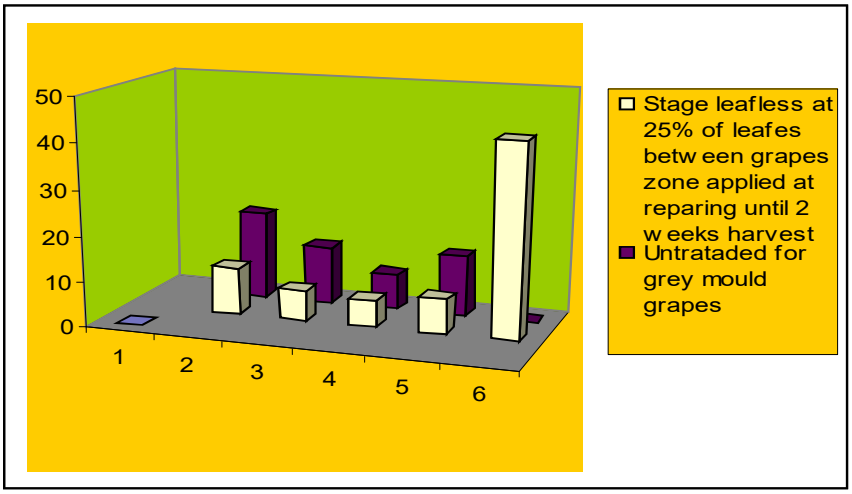

Fig. 4 - The Influence of the stage leafless about the grey mould grapes attacks in Murfatlar vineyard, in untreatated parceles, on Sauvignon variety

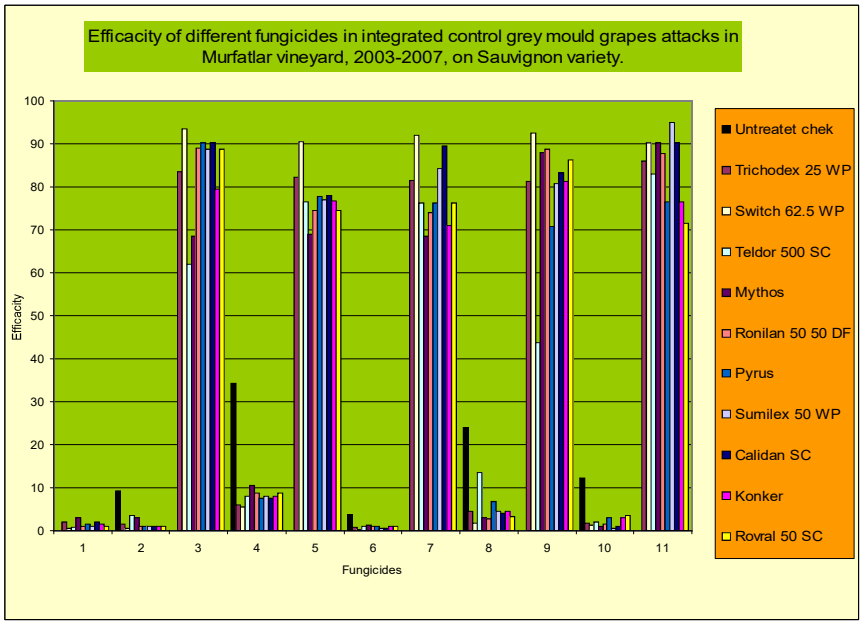

Fig. 5 – Efficacity of different fungicides in integrated control grey mould grapes attacks in Murfatlar vineyard, 2003-2007, on Sauvignon variety

CONCLUSIONS

It was obtained results who desire to be studied in the following years to give some practical solutions useful for the production regarding the reduce numbers of treatements for to use in viticulture with more curage cultural practice, in complex with biological and chemical meanings.

REFERENCES

1.Alexandri AL. 1984 - *Modul de acțiune al fungicidelor*. Probleme de Protecția Plantelor, III, 257 – 318.

2.Alexandri AL., diaconu V., 1978 - *Observatii cu privire la rezistenta unor ciuperci fitopatogene fata de unele fungicide sistemice.* Probleme de Protectia Plantelor, VI.

3.Bolay A., Rochaix M., 1976 - *Lutte conte la Purriture grise (Botrytis cinerea). Effect des nouveaux fongicides (efficacite, remanence acumulation dans le sol, dans la plante.* Bulletin OIV 49, 106 – 109.

4.Baicu T. si Huiu S., 1971 - *O noua metoda de laborator pentru studierea toxicitatii fungicidelor fata de Sclerotinia fukeliana (De Bary) Whetzel*. Anale ICPP, Vol. VII, 261-266.

5.Constantinescu O., 1974 - *Metode si tehnici in microbiologie.* Ed. Ceres – Bucuresti 83 –88.

6.Filip I., 1978 - *Eficacitatea unor fungicide in vitro si in camp in combaterea chimica a putregaiului cenusiu al strugurilor la Murfatlar.* Anale ICPP, Vol XIV, 301 – 305.

7.Goga Elena, Filip I., 1979 - *Eficacitatea si reziduurile unor fungicide sistemice utilizate in combaterea unor boli la vita de vie*. Anale ICPP, Vol XV, 305 – 312.

8.Pease H.L., Gardiner L.A., 1989 - *Fluozometric and colorimetric procedurres for determining residues of benomyl*. J. Age. Food Chem 17, 267.

9.Anonim, 1979 - *Pesticide residues in food*. FAO, Romania.

10.Anonim, 1994 - *Residues de pesticides*. Limites antorisees, OIV, France.