OBSERVATIONS CONCERNING THE BEHAVIOUR OF A CONVARIETY OF MAIZE TO THE ATTACK BY *USTILAGO MAYDIS* UNDER THE WEATHER CONDITIONS IN 2002 OF THE DIDACTIC STATION OF THE U.S.A.M.V.B. IN TIMIŞOARA

OBSERVAŢII PRIVIND COMPORTAREA UNUI SORTIMENT DE CONVARIETĂŢI DE PORUMB LA ATACUL CIUPERCII *USTILAGO MAYDIS* ÎN CONDIŢIILE CLIMATICE ALE ANULUI 2002 ÎN CONDIŢIILE DE LA SDA A U.S.A.M.V.B. TIMIŞOARA.

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Abstract: *On the common field conditions and climatic conditions from the year 2002, at Didactic Station of USAMVB, a number of convarieties and hybrids of have a different behaviour to the attack of common smut caused by fungus Ustilago maydis. Both, field readings and statistic results of the attack are in the tables 1 and 2 and could be a source of information for researchers which have to choose a gene source for pathogens resistance breeding.*

Rezumat*: în condiţiile pedoclimatice ale anului 2002, la Staţiunea Didactică a USAMVB, un număr de convarietăţi şi hibrizi de porumb au demonstrat un comportament diferit la atacul de tăciune comun (Ustilago maydis). Atât rezultatele bonitărilor din câmp cât şi rezultatele interpretătii statistice sunt redate în tabelul 1 şi pot constitui o sursă de informaţii pentru cercetători care trebuie să aleagă o convarietate ca sursa de gene în ameliorarea rezistentelorla agenţii patogeni*

Key words*:* Ustilago maydis, *maize convarieties*
Cuvinte cheie*:*Ustilago maydis, *convarietăţi de porumb;*

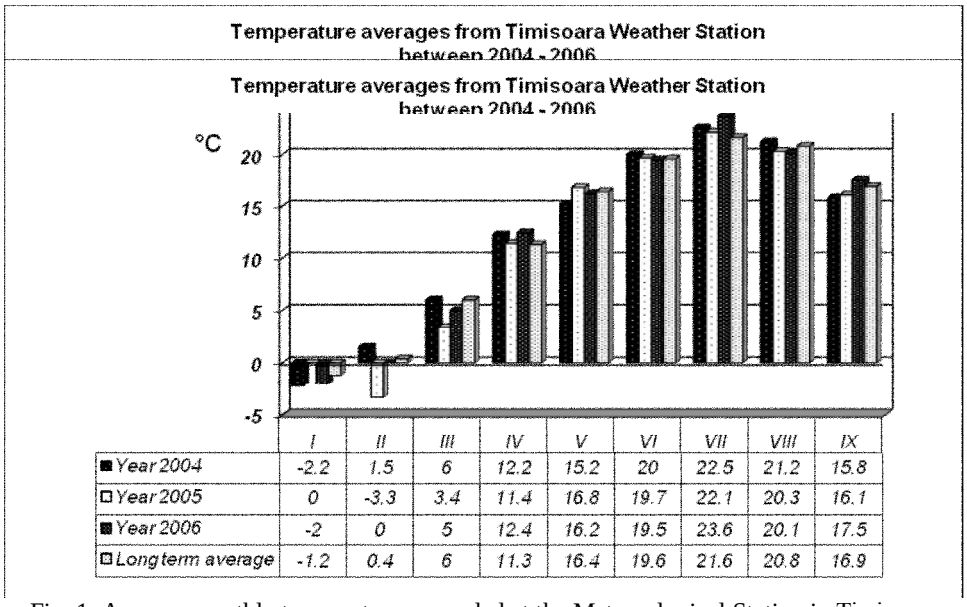
INTRODUCTION

Between 2004 and 2006 we have made a number of observations in the maize experimental of field crops discipline from Didactic Research Station. It was very interesting to see the differences between convarieties to the attack of fungus *Ustilago maydis* and, the fact that it may be interesting as information for other researchers and farmers is the reason of the present paper with experimental results. These results are interesting also taking in consideration the climatic changing's from the last 10 years. All this factors bring in front a reconsideration of the actual hybrid natural found and also the moment to see the natural reservoir for corn hybrid creation.

MATERIAL AND METHOD

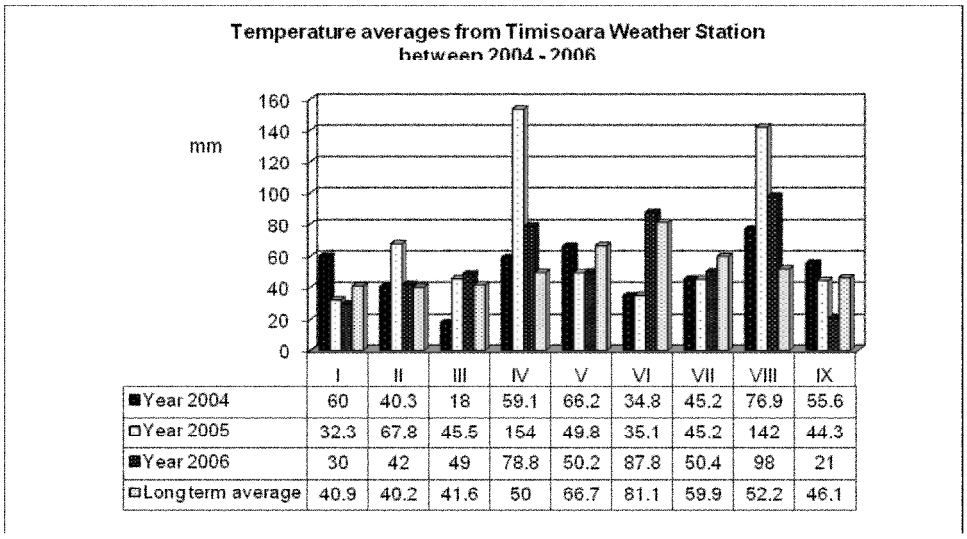
Experimental conditions where those from Didactic Research Station from Timisoara and consist from a chernozem soil and ecological conditions. In the figures below are described temperature (figure 1) and rain (figure2) between 2000 and 2002 and the average for this two whether parameters available for the experimental field.

The purpose of this study was to see the behaviour of a large assortment of hybrids and convarieties to infection with common smut of maize (*Ustilago maydis*) under natural conditions from Western Plain of Romania. Over the field observations the frequency of attack was performed statistic interpretation after the method for one factor experiments.



	I	II	III	IV	V	VI	VII	VIII	IX
Year 2004	-2.2	1.5	6	12.2	15.2	20	22.5	21.2	15.8
Year 2005	0	-3.3	3.4	11.4	16.8	19.7	22.1	20.3	16.1
Year 2006	-2	0	5	12.4	16.2	19.5	23.6	20.1	17.5
Long term average	-1.2	0.4	6	11.3	16.4	19.6	21.6	20.8	16.9

Fig. 1 Average monthly temperatures recorded at the Meteorological Station in Timişoara between 2004 and 2006 compared to multiannual means



	I	II	III	IV	V	VI	VII	VIII	IX
Year 2004	60	40.3	18	59.1	66.2	34.8	45.2	76.9	55.6
Year 2005	32.3	67.8	45.5	154	49.8	35.1	45.2	142	44.3
Year 2006	30	42	49	78.8	50.2	87.8	50.4	98	21
Long term average	40.9	40.2	41.6	50	66.7	81.1	59.9	52.2	46.1

Fig. 2 Monthly rainfall recorded at the Meteorological Station in Timişoara between 2004 and 2006 compared to multiannual means

Biological material consist from the following convarietyes *Zea mays L conv. amylacea, Zea mays L conv. everta*(whith white and red seeds), *Zea mays L conv. aurantiaca, Zea mays L conv. saccharata, Zea mays L conv. tunicata, Zea mays L conv. alba, Zea mays L conv. aorista, Zea mays L conv. crocodon, Zea mays L conv. pyrodon, Zea mays L conv. rubra, Zea mays L conv. rubro-paleata, Zea mays L conv. leucodon.*

RESULTS AND DISCUSSIONS

Statistical analyze of the attack frequency performed over the common smut of maize to convarieties indicate a very large scale of values. The average of attack frequency was chosen to be the witness for statistic interpretation of results and the value was 16.2 %. Attack frequency values were between 26.7 % to *Zea mays L conv. alba* and 3.7 % to white seed *Zea mays L conv. everta*. General variation of the attack frequency was very high and for that reason the limit differences was to big and the differences between witness and all seven convarieties values of frequency has no significance(table 1).

Table 1

Frequency results of *Ustilago maydis* on convarieties

Nr.	*Convariety*	*2004*	*2005*	*2006*	*Average (%)*	*Difference*	*Significance*
1	Everta (white grains)	5	5	1	3.7	-12.5	-
2	Saccharata	15	30	20	21.7	5.5	-
3	Alba	20	35	25	26.7	10.5	-
4	Vulgata	19	25	25	23.3	7.1	-
5	Aorista	10	50	0	20	3.8	-
6	Crocodon	0	15	0	5	-11.2	-
7	Rubra	10	0	30	13.3	-2.9	-
Average		11.3	22.8	14.6	16.2	Witness	-

DL 5%= 22.1 DL 1%= 30.6 DL 0.1%=42.6

Year	*2004*	*2005*	*2006*	*Average (%)*
Average	11.5	26.6	11.8	18.3
Difference	-6.8	8	-6.5	Witness
Significance	00	xx	00	-

DL 5% = 5.1 DL 1% = 7.7 DL 0.1% = 16.3

On the other side the behaviour of all maize convarieties over the three years of observations point out that comparing with an average of the period, the years 2004 and 2006 registered a distinct significant differences. Comparing with this situation, in the year 2005, the frequency of *Ustilago maydis* attack has a distinct significant difference comparing with witness.

CONCLUSIONS

1. For convarieties there a very high variation of attack frequency, not only for different convarieties but also between observation years for the same convariety.
2. For convarietyes frequency, the results point out that the most sensitive was *Zea mays L conv. saccharata* with 10.5 %.

3. The best results was shown at convarieties *Zea mays L conv. everta* with a negative average of 12.5 % and *Zea mays L conv. crocodon* also with a negative average of attack frequency of -11.2 %

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