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**THE CURRENT SITUATION OF THE DEGREE OF WEED INFESTATION
 IN THE MAIZE CROP**

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Abstract

In maize, there is a high level of infestation with annual and perennial weed species, associated with a high diversity of them, which determines a pronounced competition for the development of the crop plant, negatively influencing the production and quality obtained per hectare in the absence of the application of adequate control measures. Weed management in European agriculture is subject to divergent trends generated, on the one hand, by the access to innovative technological proposals and on the other hand by the negative impact of already observable climate change and legislative restrictions. Integrated Weed Management (IWM) represents a modern and sustainable weed control strategy, based on the combination of methods so that weed infestation is effectively reduced and the environmental impact is minimal.

• Introduction

Maize (*Zea mays*) is one of the most important agricultural crops in Romania, making a major contribution to food security, the livestock sector and numerous food and non-food industries. In the field of weed control, the main objective was to permanently eliminate weed competition throughout the vegetation period, by reducing infestations below the damage threshold, reducing water and nutrient consumption by weeds, ultimately contributing to obtaining high and quality production, corresponding to the biological potential of corn hybrids (*Bârlea și Se g ă r c e a n u*, 1987; *Ș a r p e*, 1987; *G u ș e t a l.*, 2004)

During the research period, the corn crop presented a diversified degree of weed infestation, with annual and perennial weed species, depending on the location area, the applied technological links and the preceding plant. The emergence of different weed species is correlated with aspects of climatic conditions, with the reserve of weed seeds in the soil and the reduced power of the corn plant to compete with them. (*Serban, 2021*)

Weeds in the maize crop need a thorough study of their lifestyle and behavior in the pedoclimatic conditions of Fundulea, especially due to the fact that they have different biological properties compared to the crop plant.

• Material and method

Climate change represents one of the greatest threats to agriculture. Over the past few decades, phenomena such as increasing global temperatures, changing precipitation amounts and the frequency of extreme events have begun to make their presence felt, having significant consequences on production both quantitatively and qualitatively.

The research on the study of the infestation degree, the dominance and predominance of weeds present in the corn crop was carried out in the experimental field (the cambic chernozem soil type -3.2% OM, 37% clay, 6.5 Ph) at NARDI- FUNDULEA. During the research period of 2019-2023, the climatic conditions (temperature and precipitation) recorded at Fundulea were different (Fig.1;Fig.2)

• Results and discussions

In the maize experiment carried out in the Fundulea experimental field, the crop showed a high degree of infestation with annual and perennial monocotyledonous and dicotyledonous weeds, 65-90%, extremely diversified, depending on local pedoclimatic conditions. In the experimental field (untreated plot), the most significant weed species (fig.3.) are: the monocotyledonous: *Setaria viridis*, *Echinochloa crus-galli*, *Sorghum halepense* and the dicotyledonous: *Polygonum convolvulus*, *Anthemis arvense*, *Amaranthus retroflexus* *Solanum nigrum* *Xanthium strumarium*, *Galium aparine*, *Chenopodium album*, *Sinapis arvensis*, *Ambrosia sp.*, *Cirsium arvense* and *Convolvulus arvensis*.

Weeds compromise the crop to a much higher degree, they compete with crop plants for water, light, heat and nutrients, affecting the level of production and quality of the harvest.

Weed infestation of maize crops is becoming an increasingly problematic factor in the context of climate change, as changes in temperature, precipitation and extreme events create ideal conditions for weed proliferation and reduce crop competitiveness.

In agriculture, the damage caused by weeds is irrecoverable and quantified in several ways:

- quantitatively (by reducing the level of production);
- qualitatively (by depreciating the quality of the harvests);
- increasing production costs (technological links are affected in value).

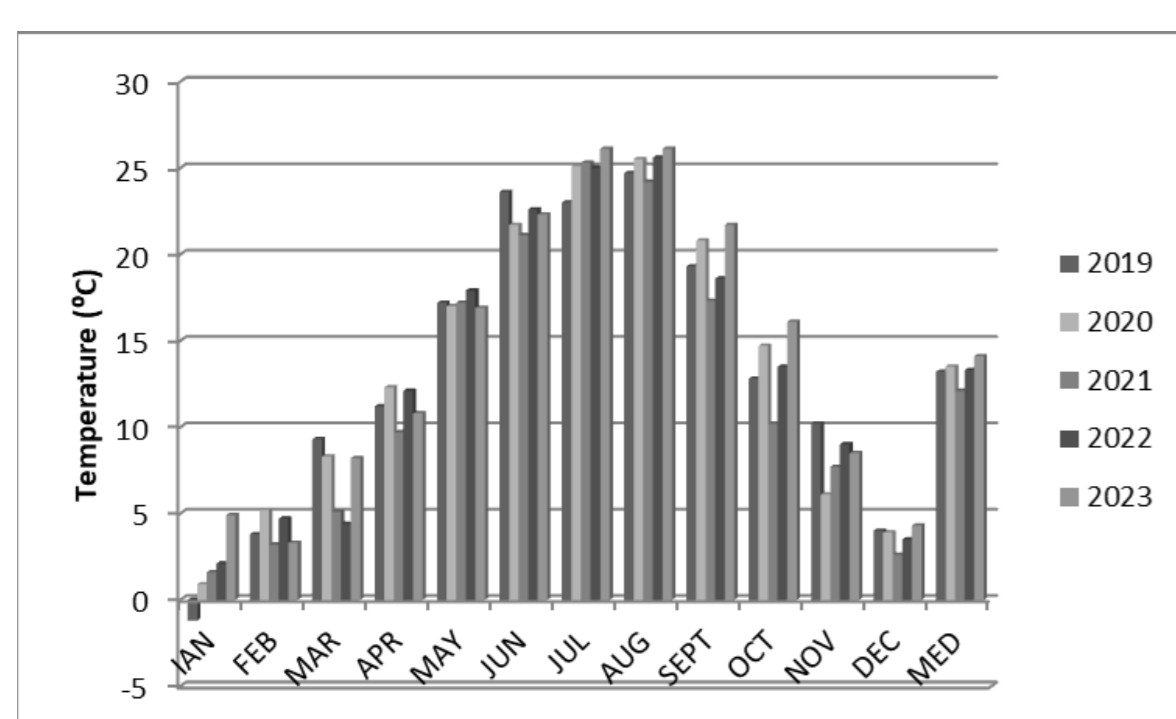


Fig.1. Climatic conditions (temperature)

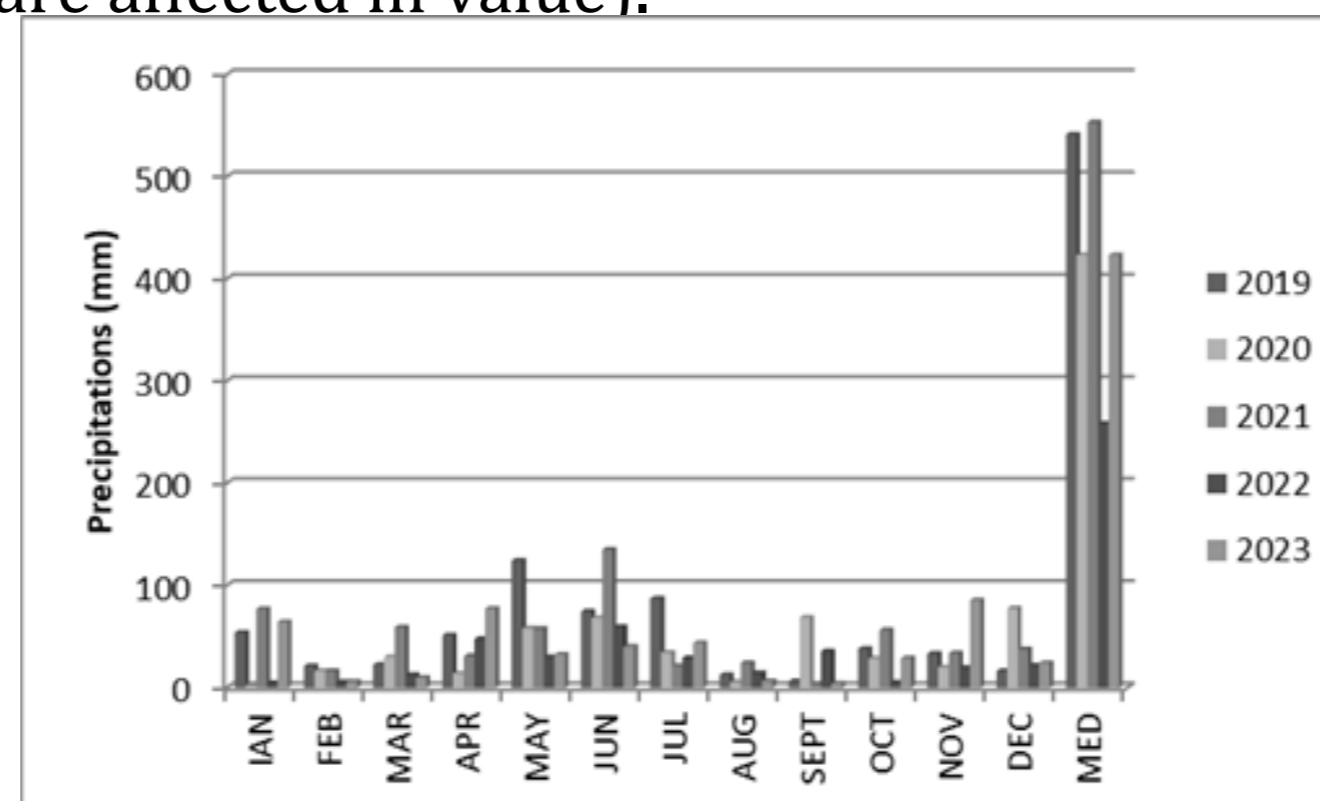


Fig.2. Climatic conditions (precipitations) from NARDI FUNDULEA 2019-2023

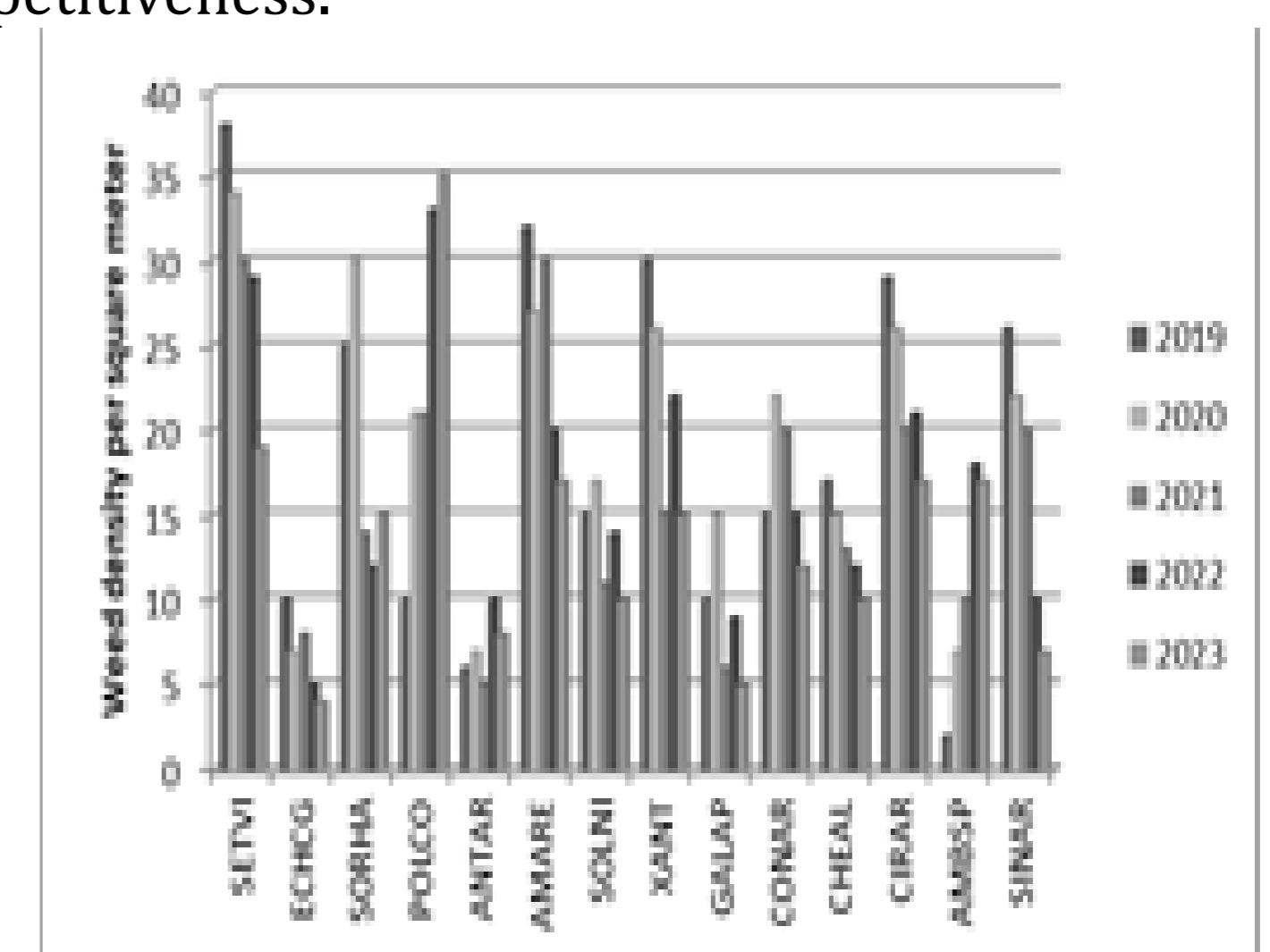


Fig.3. The weed density from maize crop in the untreated plot, NARDI FUNDULEA

• Conclusions

The maize crop presents a high degree of infestation annually, with characteristic species. The causes of the appearance of different weed species are correlated with: - zonal climatic conditions; - seed reserve in the soil; - plant-weed competition.

Weed infestation of maize crops in the Fundulea area is amplified by climate change by extending the vegetation period of weeds, favoring invasive species and increasing competition for resources.

Integrated Weed Management (IWM) is a modern and sustainable weed control strategy, based on the combination of methods (preventive, mechanical, biological and chemical) so that weed infestation is effectively reduced and the impact on the environment.

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