Summary

AGROPHYTOTECHNICAL MEASURES REGARDING THE REDUCING EFFECTS OF DROUGHT PHENOMENON FOR SOME FIELD CROPS IN BARAGAN PLAIN

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The post - graduate thesis entitled "AGROPHYTOTECHNICAL MEASURES REGARDING THE REDUCING EFFECTS OF DROUGHT PHENOMENON FOR SOME FIELD CROPS IN BARAGAN PLAIN" brings forward an array of results derived from researches regarding the action of some agrophytotechnical measures on its production and quality, applied in order to reduce and to prevent the drought effects. The researches were done between two agricultural years 2012 – 2014 on wheat and corn.

This thesis presents a number of agrophytotechnical solutions for improving cultivation technologies, in order to limit and decrease the effects of the drought phenomenon that affect wheat and corn crops. Enhancing the cultivation technologies requires investigation, vast knowledge, especially regarding the influence that technological links (farming, plant density, breed/hybrid, etc.) have on production, quality and, maybe the most important aspect of all, how they can prevent and/or decrease the drought phenomenon effects, in order to establish a dynamic balance in the agroecosystem.

Both corn and wheat play an important part in the economy of the country due to their high nutritional value, their degree of preservation and because of their suitability to obtaining a diverse palette of food.

The thesis consists of 237 pages and it is composed of 9 (nine) chapters, with 82 figures, 91 tables, 162 bibliography references.

The first chapter entitled "GENERAL CONSIDERATIONS ON THE WHEAT AND MAIZE CROPS" conveys the situation of the studied species on both scales, worldwide and national, as to their origin, spreading and economic importance. This chapter also describes the agrobiological particularities of the studied plants and it shows the surfaces where they can be found in Romania and worldwide.

The second chapter, "THE ACTUAL PHASE CONCERNING THE MEASURES OF DECREASING THE DROUGHT EFFECT IN OUR COUNTRY AND

INTERNATIONALLY", conveys the impact of drought on agriculture worldwide and in our country. Drought affects more and more farmland and is the cause of socio-economic consequences. In Romania, the southern and eastern part (Black Sea coast, Bărăgan plain, south - western Oltenia and Bârlad platform) are drought – endangered. Knowing the drought determinant factors will let us identify adequate cultivation zones, taking in consideration the water desire degree of the plants. In order to face the risks that drought implies there are used the following measures: developing and recovering the irrigation systems, cultivation of drought resistant plants, planting forests as curtains, promoting and applying advanced agro-technic systems, use of fertilizers, flattening slope terrain in order to maintain water, monitoring drought affected zones. Nevertheless, the drought affected zones must be identified so these measures can be applied.

The third chapter „PEDOCLIMATIC CONDITIONS OF THE EXPERIMENTATIONS" brings forward the natural frame of the zone. The county of Ialomița is situated in the south-eastern part of Romania, in Câmpia Română, with the widest surface comprised by the south-eastern area of Bărăgan, being next to Ialomița river and the inferior branch of Danube, Borcea. While describing the natural environment, there were taken in consideration the area's existent geomorphological data, lithological data, hidrology and geo-hidrology data. As far as the climate is concerned, the studied zone is characterised by a transition between the dry stepe climate zone and the wet forest zone, framed by the *Dfax* climate, temperate continental climate. The results show that the area of Ialomița county is soil quality suitable for agricultural production by corectly applying the technologies.

The variation of the climate elements determined describing the agricultural years as such: 2012 – dry, 2013 – normal, 2014 – fair. The pedoclimatic conditions influenced the effect of the applied technology, the farming methods, the fertilization methods of crops and hybrids, both by quantity and quality.

Chapter four, "RESEARCHES AND WORK METHOD" includes the main theme and the way that researches were done. The main objectives followed the influence of framing, fertilization of crops and breed/hybrid on wheat and corn production. The associated influence of the technological links on the economic results were also observed. Two crops experiences were set (wheat, corn). The experiences were done by using the divided lot method, two time with the following gradual factors:

Experience I – WHEAT – two-factor experience of 3x3 type.

Factor A – soil farming

A1 - ploughing + disc + combiner + seeding (martor version) - the soil tillage in conventional system

A2 - combiner + seeding - the soil tillage in minimum tillagel system

A3 – direct seeding - no-till system

Factor B – breed

B1 – Boema (martor)

B2 – Glosa

B3 – Izvor

Experience II – MAIZE – three-factor experience of 3x2x3 type

Factor A – soil farming

A1 - ploughing + disc + combiner + seeding (martor version) - the soil tillage in conventional system

A2 - combiner + seeding - the soil tillage in minimum tillagel system

A3 – direct seeding - no-till system

Factor B – plant density

B1 – 55 000 pl/ha (martor)

B2 – 65 000 pl/ha

Factor C – Hybrid

C1 – Olt (martor)

C2 – Mostistea

C3 – PR36V52

In chapter IV the breed/hybrids that were taken into study were described by taking in consideration the production potential and the agronomic characters held by every one of them, there were also mentioned the personal contributions to the researches and the technologic files on crops were detailed.

Chapter V, "WHEAT CROP RESULTS" consists of the results obtained from every studied year, but also of an average of the period between 2012-2014 and it ends with a data synthesis regarding the influence of every factor on production

Chapter VI, entitled "CORN CROP RESULTS" conveys the data obtained in every year but also the average from the same period as above, but only for corn. The processing of the results can be seen through 33 table and 21 figures. The chapter has a data synthesis at the end from the full time of the investigation.

In order to emphasise on the veridicity of the obtained scientific results during 2012-2014, from wheat and corn, we can say that the variation the registered climate elements made the crops evolve during different years (droughty, normal, and variable). Thus, we can extrapolate the conclusions and the recomandations also for the zone with similiar pedoclimatic conditions to the ones from the research zone.

Chapter VII, named, QUALITY PRODUCTION "presents the quality results obtained from the culture of wheat and corn, as the average of 2012-2014. Concluding chapter highlights the recommendation technology, that is best suited for dry years for the two cultures locally.

Chapter VIII, named “ECONOMIC RESULTS” presents the analysis regarding the economic efficiency of the crops. The calculated indicators were the following: production cost, gross profit and the gross profit rate, but the cultivation budget (technology spendings) was the basis of the calculation done on the indicators.

Chapter IX, entitled “CONLCUSIONS AND RECOMANDATIONS” concretizes with an array of conclusions the results obtained during the research period. After dealing with the conclusions, we can state that, by perfecting the cultivation technologies, like diverse farming methods, fertilizing and choosing a suitable hybrid for the cultivation done it can be favourably contributed to increasing the productivity with optimal results and especially the disastrous results of the drought phenomenon can be diminished.

Considering the climate change and the agricultural challenges that show up along with the drought phenomenon, the continuance of the researches regarding the improvement of the technological links from wheat and corn in our country is recommended.

The thesis concludes with a number of 162 bibliographic titles. It was all used to gather documentary evidence for creating the first three chapters and they contain speciality romanian authors, but also foreign ones.