

The Interaction of Drought Stress and Gibberellic Acid on Corn (*Zea Mays L.*)

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Abstract—Plant water stress or water scarcity refers to situations in which cells are removed from the swelling. Range of water stress decreased water potential in mid-day partial to the permanent wilting and drying plant is variable. Severe water stress intensity is high, reducing photosynthesis and disrupting physiological processes, and finally drying and plant death. This study was a split plot randomized complete block design with four replications in a field located in the city of Ahvaz was healthy martyr. A hybrid variety of corn was used in this experiment. According to the study treatment during drought stress irrigation was performed. The use of irrigation as the main levels and hormone concentrations were used as sub-levels. Occurrence of drought stress has significant effects on corn yield was reduced, especially if the stress at flowering or grain filling period is going to significantly reduce the performance will be accompanied. Applied stress at different growth stages of maize shows that the peak stress of forming and ear height, and yield are severely reduced.

Keywords—Corn, drought stress, gibberellic, yield

I. INTRODUCTION

CORN (*Zea Mays L.*) cultivation in Iran in recent years has flourished and its use in animal feed and industrial use is considered. However, the specific steps needed to supply water to the plant vegetative and reproductive growth of the ultra-sensitive to water stress is different. The results of the pot and colleagues [6] on the intake of the corn grown in pots of soil that is more negative as the soil suction, reduced growth and biomass is also less severe. Collier Research [8] about the stress on corn growth stages show that water stress at peak bloom and ear height, and yield are severely reduced. Stress at peak bloom was caused delay in the emergence of inflorescence. Also, the stress in vegetative stage, 32 to 28 percent was reduction in dry matter production. The most sensitive stage for 66 to 93 percent was drop in corn that will yield long-term moisture stress at heading to the peak of the ear. About the stress in the dough stage of grain weight and yield stress that this will significantly reduce the severity of the ear. Stress and reduce water consumption significantly reduced maize plant height, stem diameter and leaf area index and dry matter is. Plot [3, 5] has acknowledged that the stage of flowering and ear formation, and the smallest is the most sensitive stage to water stress at this stage of growth, leading to lower yield than the

loss of dry performance, reduced height and stem diameter is. Research results show that the effect of moisture stress at flowering time, the total number of kernels per 100 seed weight, more performance and dry performance compared with no treatment applied stress decreases sharply. He has acknowledged that the most critical stage of flowering time in maize is. Research and perceptive stress applied at different growth stages of corn showed that the stress generally reduced grain yield, grain number in hand, weighing 100 grains per ear, decreased stem diameter and plant height is reduced [2, 6].

II. MATERIAL AND METHOD

This study was a split plot randomized complete block design with four replications in a field located in the city of Ahvaz was healthy martyr. A hybrid variety of corn was used in this experiment. According to the study treatment during drought stress (irrigation was performed. The use of irrigation as the main levels and hormone concentrations were used as sub-levels.

Bed preparation including the moldboard plow, disk, leveling with a trowel and planting in rows to create the climate and the stack is Furrower. Sampling and laboratory analysis of soil bed was prepared. Nutrients such as phosphorus to the soil after plowing and before Furrower test were used. Hand-weeding to control weeds and pests and diseases and the possible use of the pesticide sprayer was effective.

On the sixth plant is planned in August. Cultivation and plant density of 75,000 ha for corn will be done. Planting can be done manually.

III. RESULT

Occurrence of drought stress has significant effects on corn yield was reduced, especially if the stress at flowering or grain filling period is going to significantly reduce the performance will be accompanied. Applied stress at different growth stages of maize shows that the peak stress of forming and ear height, and yield are severely reduced. The moisture stress imposed at vegetative growth stage of the production will drop 32-28 percent dry matter. This decrease in yield stress during flowering because of the drying treatment of upper leaves and male flowers cause the seed breeding and performance and reduce stress during grain filling in the treatment of the direct effect on the photosynthesis of plants and reduce the amount of produce coming shrunken grains with less weight and also due to arrive ahead of physiological shortening the grain filling period is over. If it is excessive sweating in less than an hour plant, but most injuries occur when the plant comes into effect on the tension that persists more than

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several days. Reflexes of morphological, physiological and biochemical plants with severe water stress and vary period. A mild stress can alter only the most sensitive processes, increased tension, exacerbated by these changes and other processes are affected depending on their sensitivity to stress. Most of the activity of enzymes in water deficient conditions (nitrate reducing enzyme) but decreased activity of some enzymes such as amylase hydrolysis increases. The severity and period of water stress in plant growth stage, where stress is the effect of water stress on growth and yield were important, Provide sufficient water for plant growth or development in, for physiological activity in plants is very important. A critical stage in relation to the type of plant and its cultivation is described. The plants that produce fruits or seeds are planted. The critical period is when the reproductive organs of plants and the pollination and breeding time come.

IV. DISCUSSION

These hormones are hormones such as gibberellic (GA_3) cited that with particular dose in crop plant to have a great impact. Including the effects of such cases can be cited. If have used too much, or as gibberellic to cooperate with, growth of leaves, often leaves much to be twice normal. The application of gibberellic acid may act as the regulator. The seedlings to gibberellic entering dormancy are induced by short days of delays. Gibberellic can move at the speed of 5 cm up to speed metabolites are transported by the phloem [9].

Some plants naturally grow short gibberellin make possible the longitudinal growth of natural plants such as rice, lettuce, Wheat they stimulate and cucumber. Gibberellin amazing effects on the long stems of plants have ruffed. Into intercellular apical meristem activity following short peas and corn varieties to gibberellin sensitive and is stimulated by these hormones [6].

Pull over into intercellular intercellular Gibberellins stimulate growth is due by. The hormones in wheat or barley plants, which have seen the light and into the intercellular they are effective yet completely ceased. By GA_3 correlation between the growth axis of the lettuce and peas, dry wall is considered overweight. The longitudinal growth was with a significant increase, by a Type proliferation and increased cell forward manner. These changes, combined with the synthesis and secretion of wall material that is very similar to the change by GA_3 Wheat and barley plants is induced in cells meet. The changes were in the cells of the alpha-amylase synthesis and secretion takes place [3, 5].

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