BIOCHEMICAL PROPERTIES FEEDING PLANT LEAVES

F.E.Saitkulov[1],
J.Mardonov[2],
K.O'lmasova[3],
M.Samarova[4],
A.Umarova[5]
[1]Tashkent State Agrarian University
[2-3-4-5]Stadent Tashkent State Agrarian University
https://doi.org/10.5281/zenodo.7233066

Abstract: In this paper, a complete review of the concept of foliar feeding, when they should be, how nutrients penetrate the plant tissue, and also describes in detail some of the technical limitations.

Key words: nutrition, pesticide, top dressing, plants in nutrition, photoassimilate, pesticide hydrolysis rate, growth hormone, solution pH.

INTRODUCTION

Plants have traditionally been thought to get their nutrition through the soil, where the plant's roots are expected to absorb water and essential nutrients. However, leaf nutrition has evolved in recent years to meet the real nutritional needs of plants.

The development of pressure irrigation equipment, as in the case of drip irrigation, has contributed to the need to use fertilizers that are soluble in water, as pure and purified as possible, in order to reduce the likelihood of emitter clogging. It is unclear when foliar application began, but after the development of fertilizers soluble in water or liquids, farmers began to use them in foliar application of pesticides. Initially, this spray technology was used to correct micronutrient deficiencies, but a quick correction showed that plants can absorb some of the elements through their leaf tissue. As a result, foliar application continued to advance and evolve continuously. Foliar application is currently considered the best addition to soil fertilization to meet the nutritional needs of plants.

MATERIALS AND METHODS

Foliar application is a "workaround" approach that supplements conventional soil fertilization when they are not effective enough. Foliar fertilization overcomes the limitations of soil fertilization, such as leaching, precipitation of insoluble fertilizers, antagonism between certain nutrients, heterogeneous soils that are not suitable for low dosages, and absorption fixing reactions, as in the case of phosphorus and potassium [1-3].

Foliar feeding can be used to overcome problems with roots when they suffer from limited activity due to low and high temperatures (<10°C, >40°C), lack of oxygen in flooded fields, nematode attacks that damage the root system and reduced root activity in the reproductive stages, in which most of the photoassimilates are transferred for reproduction, leaving little for root respiration (Trobisch and Schilling, 1970). Foliar nutrition has proven to be the fastest way to eliminate nutrient deficiencies and speed up plant performance at certain physiological stages (Figure-1).

Figure-1

In conditions of crop competition with weeds, foliar spraying focuses nutrients only on those plants for which they are intended. It has also been found that fertilizers are chemically compatible with pesticides and thus cost and labor savings occur. Certain types of fertilizers can even slow down the rate of hydrolysis of pesticides and growth hormones, it is necessary to lower the pH of the solution, thus achieving efficiency gains or cost savings [4].

THE DISCUSSION OF THE RESULTS.

In the first year of vegetation, a positive effect from foliar feeding was noted in variants with urea-anthranil acid - 1.0 ml/l together with cobalt nitrate-(II) at a concentration of 0.01 ml/l

CONCLUSIONS

This article discusses the concept of plant nutrition with the help of foliar top dressing. It is obvious that such top dressings are a good and reliable method of plant nutrition when soil fertilization is insufficient and ineffective. It is important to understand that this method cannot replace the supply of nutrients through the roots, since the absorption of all plant nutrients through the leaves requires a significant investment of effort and is associated with a high risk of phytotoxicity. Foliar feeding has its limitations and in some cases can be considered labor intensive. However, over the years they have taken an important place in various plant nutrition schemes. The use of highly soluble fertilizers and purified nutrients is essential to achieve the best results with this approach.

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