Production of Liquid Chemical Fertilizers Suitable for Crop Production in Wet and Dry Conditions and Comparison of Their Activities with Conventional Solid Chemical Fertilizers, and Development of Appropriate Machines in order to Use Liquid Fertilizer

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Research Period	2018-2021

Project Summary:

When solid chemical fertilizers are applied to the soil in plant production; Depending on the soil, fertilizer and climate characteristics, application method, amount and time, there are significant losses in the form of gas-shaped flying, washing and fixation. In addition to these losses, the rate of application of the solid chemical fertilizers, time and amount, salt effect and ammonia toxicity depending on the soil, climate and plant characteristics, caused by the seed germination and damage to the roots as a result of the loss of the plant's yield and quality can be seen very important losses. The nutrient intake of plants is very low on loss of yield and quality due to application of plant nutrients losses in fertilization and its negative effects. It has been determined that the nitrogen uptake efficiency of the plants is between 20-60% and the phosphorus uptake efficiency is around 20%. This situation causes significant economic losses and environmental problems. Especially in developed countries, to reduce or prevent the negative effects of solid chemical fertilizers and to increase the efficiency of the nutrient intake of plants and to contribute to the solution of the environmental problems and economics are producing and applying under the soil liquid chemical fertilizers instead of solid chemical fertilizers in the plant production. The problems and losses mentioned in our country are bigger and more serious. Within the scope of this project, 14 different liquid chemicals will be produced by using two different phosphorus forms as an alternative to some solid chemical fertilizers which are the most commonly used in our country. The effects of these liquid and chemical fertilizers will be determined in the field trials with wheat, sugar beet, sunflower, corn and cotton plants under dry and irrigated conditions in seven regions with different climate and soil characteristics. In addition, within the scope of the project, 3 different sowing machine, a total of 5 will be developed and produced for the upper fertilizer as the top for the application of liquid fertilizers to the under soil in the development season of the plants. The effects of liquid and solid chemical fertilizers and machines capable of applying liquid fertilizers under the soil. will be introduced by making field days to the farmers and related persons in the regions where field trials are carried out.

Key words: liquid chemical fertilizers, application machine of liquid fertilizer, applying liquid fertilizer of sowing machine