



Studies regarding the technique used for applying fertirrigation on agricultural crops

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Fertirrigation, modern concept of agricultural technique, is the method by which fertilizing substances are distributed to plants simultaneously with irrigation water. The main advantages of this method arise from the following aspects: it replaces the traditional system of administering chemical fertilizers, which implies the existence of complex machine systems, significant consumption of energy and labour, low coefficient of uniformity of distribution, removal from the crop of plants trampled by the wheels of machinery involved in this technology; it facilitates fast access of fertilizing substances to the plant root system, in convenient time, better valorification of them; studies previously carried out have found that in a classic system of fertilization in normal years in terms of rainfall plants capitalize about 65% of nutrients applied as fertilizer, while in years with drought they can only capitalize 40%; they avoid the phenomenon of lingering of chemical fertilizers to the soil surface (implicitly, losses of active substance through evaporation), long direct contact of them with the leaf system of plants; it allows very accurate dosing of nutrient solution components, depending on the nutritional requirements of plants as determined by chemical analysis of soil; technical solution adopted to develop the equipment for injection of fertilizing substance in irrigation water, in shape of a double membrane displacement pump, ensures proportionality of the injected flow with the flow inside the irrigation installation; the driving fluid that actuates the shaft of the pump, mounted in parallel with the main circuit of the irrigation installation, is represented by water taken from the supply pipe of this pump; overpressure required for the injection of nutrient solution in the same pipe is achieved by adopting the principle of difference in surface between driving chamber and injection chamber; linking between the technical elements of irrigation and the technical elements of fertirrigation, allows that, at the end of watering, when reaching the depth of penetration of water into the area of predominant development of plant root system, to administer all of the necessary plant nutrient solution, as determined in correlation with the state of growing of the crop.