

## Importance of water-soluble fertilizers and its use in crops

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### Introduction

Soil is a natural medium for production, which along with providing support to crops, fulfils the demand for nutrient water. Therefore, for good production of crops, it is necessary to have good both the fertility of the soil and its health, for which it is necessary to check the soil from time to time. A former soil can be productive only when its pH value and other physical and chemical properties are suitable for good crop production.

If someone suspects a deficiency in the crop, the lack of nutrients in the soil or its availability in spite of having sufficient quantity in the soil, has a bad effect on the yield of the crops. Due to the lack of compost dung manure or other organic matter in the fields, the availability of nutrients for the crops in the soil decreases. This is the main reason for low yields in most of the crops at present. The main purpose of spraying water soluble fertilizers in the standing crop is to meet the indirect demand of the elements of the crops at the earliest, due to which the yield of crops is good with great quality.

Along with the use of NPK at the time of sowing, spraying the standing crop at the appropriate time or using water-soluble fertilizers by drip method in the standing crop, more production can be achieved by meeting the nutrient demand of the crops. Urea, DAP, NPK, M.O.P at the time of sowing in drip method. Conventional fertilizers do not need to be applied and only 60% of the recommended amount of nutrients of a crop is sufficient for higher production by this method.

### Application of water-soluble fertilizers

Water soluble fertilizers are used in this method, according to the vegetative stage of the standing crop, a solution of 5 to 1.5 percent is made and sprayed on the leaves of the crops. For example, if the solution of a famous is to be prepared, then add 10 grams of soluble fertilizer in 1 litre of water and prepare the quantity of the mistake according to the arrangement of the crop.

## *Use of soluble fertilizers by drip method*

In this method conventional fertilizers like Urea, DAP, NPK, M.O. P. Today fertilizers are not used at the time of sowing of crops. And only 60% of the recommended amount of nutrients is sufficient for crops. The area on which drip irrigation system is installed for crop production. Fertigation should be started with delete irrigation 12 to 15 days after sowing or transplanting the crop on that area and should be stopped about 15 days before the crop is ripe. In this method, make solution at the rate of 1.5 to 2 grams per square meter in the prescribed area in each fertigation and irrigate it twice a week with the prescribed amount of water. In crops requiring more fertilizer, this quantity is 2.

## *Precautions for use of soluble fertilizers*

- To make rounds in drip or drip method, according to the amount of fertilizer per square meter of the field, according to the amount of round, stir well in a big pot in 3 to 4 liters of water until the fertilizer is well forgotten. After that, filter the solution and put it in the fertigation tank and after running clean water for 5 minutes, run the fertigation tank till it is empty.
- Spraying method in apple experiment, if 200 liters of water solution is required, then 12.5 tanks of water are required in 16 liters of water. Put it in 4 to 5 liters of water before dissolving and divide that quantity equally according to the 16 liters of water tank from a vessel and filter the flower of fertilizer while the water tank remains a little and pour the prescribed quantity from the vessel so that the round is complete. Mix rice filled with water and then sprinkle it.
- Spraying in standing crop in the evening when the wind is not blowing in the summer time so that the round can stay on the leaves for a long time, normal spraying should be done in the morning or evening.
- For spraying, adhesive material should be put in the round so that the solution gets absorbed by sticking to the leaves.

## *Advantage of using water soluble fertilizers*

- Through drip adrift method, fertilizers are directly available in the form of nutrients to the plants in the crops in the beginning, due to which the gas leakage of the elements is not harmed in the form of stratification.

- Due to the availability of the crops directly, the fertilizer use efficiency increases greatly, which leads to an expected increase in the quality and production of crops.
- Plants get the elements directly through the leaves by spraying method whereas when put in the soil, it takes time for the elements to reach the leaves, which has a positive effect on yield.
- The crop yields and grows well even in the case of non-availability of nutrients due to lack of nutrients in the soil or due to low moisture in the soil, because in this condition the fertilizers given by spraying will make up for the deficiency of some elements in the plants.
- The deficiency of these elements can be met immediately by spraying on showing signs of deficiency of elements in the crops, which does not adversely affect the yield.

### Types of water-soluble Fertilizers

- **N. P.K. (20:20:20)**

It is 100% water soluble fertilizer, it contains 20% nitrogen, 20% phosphorus and 20% potash. It contains nitrogen in the form of nitrate ammonium and amide. Nitrate nitrogen directly feeds on leaves of plants. becomes active in the process of.

#### Spraying Method

After the crop is 50-60 days old, make a solution of 0.5% NPK 20:20:20 and spray it.

#### Drip method

Make 30 cations by making a solution at the rate of 1.5 to 2 grams per square meter, do fertigation twice a week at the rate of 2 to sixteen 5 grams per square meter in crops that require more fertilizer like potatoes, sugarcane etc.

- **N. P.K. (19:19:19)**

It contains 19% nitrogen, 19% phosphorus, 19% potash.

#### Spraying Method

After opening the NPK 19 19 19 fertilizer in 4 to 5 liters of water, divide that quantity equally from a vessel according to the 16 liter water tank and while the water tank is slightly empty, filter the round

of fertilizer and pour the prescribed quantity from the vessel. Give it so that the round mixes well in the whole water, then spray it.

### **Drip method**

Do fertigation by making a solution at the rate of 1.5 to 2 grams per square meter, do fertigation twice a week at the rate of 2.5 grams per square meter in crops requiring more fertilizer like potato, sugarcane etc.

- **Mono ammonium phosphate (12:6:10)**

Nitrogen in this fertilizer is in the form of ammonium. Today, nitrogen dissolves in water and turns into nitrate, which directly participates in the process of making food in the leaves of plants and contains 61% water dissolved phosphorus.

### **Spraying Method**

In the initial stage of the crop, make a solution of mono ammonium phosphate 12 ratio 6:00 to 6% ratio 10 and spray it by making a solution of 5% to 1%. Vegetable After transplanting of the crops, it covers the ground soon, so the spraying depends on the stage of the crop, in the fruit crops, spray it after flowering.

### **Drip method**

Drip fertigation should be started 12 to 15 days after sowing or transplanting and should be stopped 15 days before harvesting.

- **Mono potassium phosphate (0: 52: 34)**

52% phosphorus and 34% potash are found in it, its use just before the harvest is very beneficial.

### **Spraying Method**

Spray 0.5 to 1% solution of mono potassium phosphate 0:52:34 15 days before harvest.

### **Drip method**

Fertigation can be done by making slurry at the rate of 1.5 to 2 grams per square meter, in crops requiring more fertilizer like potato, sugarcane, etc., at the rate of 2.5 grams per square meter or more can also be done. Do fertigation once or twice a week up to 15 days before harvest.

- ***Urea Phosphate (17:44:0)***

Spraying of Urea Phosphate in the early stages of the crop along with the use of NPK, DAP proves very beneficial.

### ***Spraying Method***

After harvesting, when the crop is 30 to 40 days old, spray 5 to 1% solution of urea phosphate on the crop.

### ***Drip method***

In this method, in each fertigation, make a solution at the rate of 1.5 to 2 grams per square meter in the prescribed area and use it with irrigation. In crops requiring more fertilizer, this amount can be increased at the rate of 2.5 grams per square meter.

- ***Sulfate of potash (0:0:50)***

50% potash and sulfur are also found in it, like other fertigation, 0:0:50 is done as soluble fertilizers by fertigation without using NPK at the time of sowing.

### ***Spraying Method***

Spray Sulphate of Potash Zero 0 50 at the stage of flowering and fruiting in one crop, spraying after the formation of fruit in two vegetable crops after flowering and fruit formation in fruit crops.

### ***Drip method***

Fertigation should be done by drip irrigation 12 to 15 days after sowing or transplanting the crop on the area where the drip irrigation system is installed and should be stopped about 15 days before the harvest.