

NEW METHOD FOR REMOVING SALT CLOTTING IN DRIP IRRIGATION BY USING GOMUTRA

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ABSTRACT

In our project, we are using natural products instead of acids and fertilizers for salt clotting in drip irrigation. It is one of the sub-surface irrigation method of applying water or frequent application of the water to crops through small emitters of the root zone. The drip irrigation is to apply sufficient moisture to the roots of the crops to prevent water stress. Irrigation is the artificial application of water to the land or soil. It is used to assist in the growing of agricultural crops, maintenance of landscapes, and re-vegetation of disturbed soils in dry areas and during periods of inadequate rainfall. Drip irrigation needs low labor for maintenance and it controls soil erosion. It attains maximum crop yield. Less weed growth in between the crops. Improves infiltration in soil. Now a days farmers mostly used drip irrigation for their

agriculture land because it is the best method to control the wastage of water and many subsidies are provided by our government. In that, there is a major problem in the drip irrigation is salt clotting in drip laterals. Already many acids like hydrochloric acid, nitric or sulfuric acid, phosphoric acid are used to clean the salt clotting but it affects the soil nutrients day by day. So, we introduce the cow products like gomutra is used as fertilizer and removing salt clotting in laterals. It does not affect the soil nutrients and used whenever we need for crops. It is cheap and effective method. It is eco-friendly for farmers. It should be easily available in all areas, but it is not followed by farmers. By using the gomutra in drip laterals as fertilizers it gives organic vegetables and fruits.

INTRODUCTION

An adequate water supply is important for plant growth. When rainfall is not sufficient, the plants must receive additional water from irrigation. Various methods can be used to supply irrigation water to the plants. Each method has its advantages and disadvantages. These should be taken into account when choosing the method which is best suited to the local circumstances.

A simple irrigation method is to bring water from the source of supply, e.g. a well, to each plant with a bucket or a watering. This can be a very time-consuming method and involves very heavy work. However, it can be used successfully to irrigate very small plots of land, such as vegetable gardens, that are close to the water source.

More sophisticated methods of water application are used when larger areas require irrigation. There are three commonly used methods: surface irrigation, sprinkler irrigation and drip irrigation.

SURFACE IRRIGATION

Surface irrigation is the application of water by gravity flow to the surface of the field. Either the entire field is flooded (basin irrigation) or the water is fed into

small channels (furrows) or strips of land (borders).

This group of application techniques where water is applied and distributed over the soil surface by gravity. It is by far the most common form of irrigation throughout the world and has been practiced in many areas virtually unchanged for thousands of years.

Surface irrigation is often referred to as flood irrigation, implying that the water distribution is uncontrolled and therefore, inherently inefficient. In reality, some of the irrigation practices grouped under this name involve a significant degree of management (for example surge irrigation). Surface irrigation comes in three major types; level basin, furrow and border strip.

BASIN IRRIGATION

Basins are the flat areas of land, surrounded by low bunds. The bunds prevent the water from flowing to the adjacent fields. Basin irrigation is commonly used for rice grown on flat lands or in terraces on hillsides. Trees can also be grown in basins, where one tree is usually located in the middle of a small basin. In general, the basin method is suitable for crops that are unaffected by standing in water for long periods (e.g. 12-24 hours).

FURROW IRRIGATION

Furrows are small channels, which carry water down the land slope between the crop rows. Water infiltrates into the soil as it moves along the slope. The crop is usually grown on the ridges between the furrows. This method is suitable for all row crops and for crops that cannot stand in water for long periods (e.g. 12-24 hours). Irrigation water flows from the field channel into the furrows by opening up the bank of the channel, or by means of siphons or spills.

BORDER IRRIGATION

Borders are long, sloping strips of land separated by bunds. They are sometimes called border strips. Irrigation water can be fed to the border in several ways: opening up the channel bank, using small outlets or gates or by means of siphons or spills. A sheet of water flows down the slope of the border, guided by the bunds on either side.

SPRINKLER IRRIGATION

Sprinkler irrigation is similar to natural rainfall. Water is pumped through a pipe system and then sprayed onto the crops through rotating sprinkler heads. The spray is developed by the flow of water

under pressure through small orifices or nozzles. The pressure is usually obtained by pumping.

SUITABLE CROPS

Sprinkler irrigation is suited for most row, field and tree crops and water can be sprayed over or under the crop canopy. However, large sprinklers are not recommended for irrigation of delicate crops such as lettuce because the large water drops produced by the sprinklers may damage the crop.

DRIP IRRIGATION

With drip irrigation, water is conveyed under pressure through a pipe system to the fields, where it drips slowly onto the soil through emitters or drippers which are located close to the plants. Only the immediate root zone of each plant is wetted. Therefore this can be a very efficient method of irrigation. Drip irrigation is sometimes called trickle irrigation.

SUITABLE CROPS

Drip irrigation is most suitable for row crops (vegetables, soft fruit), tree and vine crops where one or more emitters can be provided for each plant. Generally only

high value crops are considered because of the high capital costs of installing a drip system.

PREVENTIVE MAINTENANCE

It aimed at preventing clogging of the drippers, can be divided in three categories:

- Flushing the system
- Chemical injection
- Irrigation scheduling

Irrigation scheduling is not a distinct maintenance practice, and therefore it is not discussed in this book. However, the application of an orderly irrigation plan is of utmost importance to the prevention of clogging of the drippers.

CORRECTIVE MAINTENANCE

It consists mainly of removal of obstructions already present in the drippers:

- Flushing the system and one or more of the following practices according to the nature of the obstruction.
- Organic formation - treated with hydrogen peroxide.
- Mineral sedimentation - treated with acids (or a combination of acid and hydrogen peroxide).
- Organic formation and mineral sedimentation - treated with a combination of acid and

hydrogen peroxide.

USES OF GOMUTRA

Usage of Cow Urine as Fertilizer In Organic Farming methods. Composition of Cows Urine as follows. It contains 95% Water, 2.5% Urea, 2.5% of Minerals, Hormones, Salts& Enzymes. we can make natural fertilizers like Panchagavya, Amrita Jal, Jeevamrutham etc with Cow Urine. With the help of these natural fertilizers we can improve the growth rate of plants and that will be results in increase in production. All these organic fertilizers are cot effective and eco friendly. You can use it alone and mix with some other ingredients to get good results. Please be remember that do not apply directly to the plants. you need to dilute it 10% with water and apply to the vegetables. means 1 litter cow urine should dilute with 10 litter of water.

we have discussed about organic fertilizers and pesticides here. You can use cow urine as a good organic fertilizer and pesticide. This is best for the cultivation of spinach aka cheer. You can check how to make a good and effective organic fertilizer. It can use as a organic pesticide, we can prevent some attacks by the insects with this. This is using as an effective organic fertilizer in India and other

countries. You can use it alone and mix with some other ingredients to get good results. Please be remember that do not apply directly to the plants. you need to dilute it 10% with water and apply to the vegetables. means 1 litter cow urine should dilute with 10 litter of water

In our project, we are using gomutra instead of using acids like nitric acids, dil. Hcl, sulphuric acid, etc., Farmers used drip irrigation method for their agricultural field because it is the best method to supply the water and it controls the wastage of water supply and it also saves time. It reduces the labour cost for supplying water to the field. In that, salt clotting is the major problem in drip laterals. By using many acids to remove the salt clotting in drip laterals. Using acids in drip laterals, it affects the soil fertility and nutrients of crops. so we introduce the natural product gomutra instead of using acids in drip laterals. It does not affects the drip laterals. It increases the soil fertility and nutrients of the soil. This method is cheap and economic for farmers. It gives organic vegetables and increases the durability of drip laterals.



Deposition of salt



Removal of salt

CONCLUSION

- In our project, we using natural product gomutra instead of acids to removing salt clotting.
- Most of the farmers used drip irrigation for their agriculture land because it is the best method to control the wastage of water.
- Many subsidies are provided by our government.
- In drip laterals, salt clotting is removed by using acids but it

affects the drip laterals and also the fertility of soil.

- We introduce the cow product gomutra to remove the salt deposited in the drip laterals.
- By using this gomutra we improve the nutrients and fertility of soil.
- The durability of drip laterals should be increased by using gomutra
- So, we get organic vegetables, fruits and provide good health for our future generation.

REFERENCES

- **Mr.Velmurugan** and **Mr.A.Senthil** Agriculture Department officer (Yethapur)
- Types of Soils and Crops Details (PWD office) Attur.
- **Krishnaraju.N** Drip Irrigation Details.
- **Narayanamoorthy.A** (2005) Economics of Drip Irrigation.

Porter DO Subsurface Drip Irrigation.