



Seed Treatment with Animal Waste and Bio Fertilizers in Vegetables Crops

(*Nisha, Axay Bhuker and Nidhi)

Chaudhary Charan Singh Haryana Agricultural University, Hisar-125 004

*nishasamra28@gmail.com

Vegetables are a rich source of folate, a B vitamin that helps your body make new red blood cells. Vegetables are also great sources of essential minerals like: Copper, magnesium and zinc etc. Vegetables are full of essential vitamins, minerals, and antioxidants that provide many important health treatments that will be entirely effective in preventing disease. Many green leafy vegetables like kale, spinach, and chard contain potassium which helps kidneys to filter sodium from body more efficiently, which reduce blood pressure. The American Diabetes Association recommends at least 3 to 5 servings per day of non-starchy vegetables like broccoli, carrots, or cauliflower.

Good quality seeds are the most important input in agriculture. Seed treatments, in broad terms, are the application of biological, physical and chemical agents and techniques to seed that provide protection to seeds and plants and improve the establishment of healthy crops. The benefit of seed treatment leads to increased germination and ensures uniform seedling emergence. Treating seeds with Rhizobium enhances the nitrogen fixing capability of legume crops and their productivity. Now a day's Germination and pest and disease attack is a major problem in vegetable crops, with this context the different seed treatment methods that are followed in vegetable crops furnished below.

Procedure for Seed Treatment

Seed treatment is a term that describes both products and processes. Seed treatment can be done in one of the following types.

1. **Seed dressing:** This is the most common method of seed treatment. The seed is dressed with either a dry formulation or wet treated with a slurry or liquid formulation. Low cost earthen pots can be used for mixing pesticides with seed or seed can be spread on a polythene sheet and required quantity of chemical can be sprinkled on seed lot and mixed mechanically by the farmers.
2. **Seed coating:** A special binder is used with a formulation to enhance adherence to the seed.
3. **Seed pelleting:** The most sophisticated Seed Treatment Technology, resulting in changing physical shape of a seed to enhance palatability and handling. Pelleting requires specialized application machinery and techniques and is the most expensive application.

Seed treatment methods in important vegetable crops

Chillies: Soak seeds in sweet flag extract or cow's urine at 1:5 ratio (1 part of extract or cow's urine with 5 parts of water) for 30 minutes before sowing. This will inhibit the seed borne diseases like fruit rot and die back. Soaked seeds tied in a cotton cloth in biogas slurry for 12 hours before sowing that will kill the disease causing microbes and enhance the seed

vigour. Treat the seeds with *Trichoderma viride* @ 4gms/kg of seeds and then sow after 24 hours.

Brinjal: Soak the seeds in 12% raw cow's milk (120 ml of raw cow's milk in 880 ml of water) for good germination percentage and seedling vigour. Seeds should be soaked in a solution of cow's urine (1 part cow's urine + 5 parts of water) for 30 minutes prior to the sowing. This will inhibit the seed borne diseases like fruit rot and die back. Seeds should be bundled using a thin cotton cloth and soaked in the biogas slurry for 12 hours prior to the sowing. This will kill all the disease causing microbes and also enhance the seed vigour. Treat the seeds with *Trichoderma viride* @ 4 gms/kg seeds or with *Pseudomonas* @ 10 gms/kg seeds and then sow after 24 hours.

Bhendi: Treat seeds with 15% or 25% raw cow's milk (150 ml of milk in 850 ml of water or 250 ml of milk in 750 ml of water) for 6 hours and then sow. This will increase the germination percentage and seedling vigour. It will also reduce the intensity of the vein clearing disease and increase the yield. Soak seeds in 1-2% of Panchagavya (10 – 20 ml of Panchagavya in 990/980 ml of water) for 6 hours before sowing. This will improve the germination and seedling vigour. Treat the seeds with *Trichoderma viride* @ 4 gms/kg seeds. Treat the seeds with biofertilizers - *Azospirillum* and *Phosphobacteria* (each @ 60 gms mixed with 60 ml of rice gruel for one kilogram of seeds) and shade dry for 30 minutes before sowing.

Bottle Gourd: Soak seeds in water for 24 hours before sowing to break the dormancy and to quicken the germination. Soak the seeds in warm water for 30 minutes before sowing. This helps in the softening of the hard seed coat. Soak seeds in cow's urine solution (1 part cow's urine + 5 parts of water) for 30 minutes prior to the sowing. This will inhibit the seed borne diseases. Treat the seeds with *Trichoderma viride* @ 4 gms/kg seeds and then sow after 24 hours.

Bitter Gourd: Soak the seeds in diluted cow's urine for 12 hours and in diluted cow's milk for 6 hours before sowing for good germination percentage. The dilution should be at the ratio of 1:1 (1 part of cow's urine or cow's milk with 1 part of water). Soak the seeds in raw cow's milk for 24 hours before sowing for good germination and yield.

Snake Gourd: Treat the seeds with cow dung @ 1 kg per kg of seeds for 30 minutes. This will increase the drought resistance and make the seeds germinate quickly.

Tomato: Fumigate the seeds with Vasambu (*Acorus calamus*) and Vaividanga (*Embelia ribes*) powder. Take seeds in a metal sieve. Take hot coal in a metal plate and sprinkle Vasambu or Vaividanga powder over the hot coal and hold the sieve with seeds against the fumes in a standing position for 2 – 3 minutes. This will enhance the germination rate and protect the seedlings from fungal pathogens. Treat the seeds with *Trichoderma viride* and *Pseudomonas fluorescens* (@ 5 gms /100 gms of seeds). This will help in the control of early blight and other pathogens.

Beans: Soak the seeds in raw cow's milk for 24 hours before sowing for good germination and yield. Treat the seeds with powder form of *Trichoderma viride* @ 4 gms/kg or *Pseudomonas* @ 10 gms/kg of seeds. Seed treatment with *Trichoderma* or *Pseudomonas* protects the crops from disease causing microorganisms.

Root Vegetables: Soak the seeds of beetroot and radish tied in a cotton cloth in water overnight or in warm water for 30 minutes before sowing. This will help to quicken the germination and result in fast growth and healthy plants. Soak seeds in a solution of cow's urine (1 part cow's urine + 5 parts of water) for 30 minutes prior to the sowing. This will

inhibit the seed borne diseases. Treat the seeds with *Trichoderma viride* @ 4 gms/kg of seeds and then sow after 24 hours.

Advantages of seed treatment

1. Protects germinating seeds and seedlings against soil and seed borne pathogens/insects.
2. Seed germination enhancement.
3. Early and uniform establishment and growth
4. Enhances nodulation in legume crop.
5. Better than soil and foliar application.
6. Uniform crop stand, even in adverse conditions (less/high moisture)

Conclusions

Quality seed is the most important input for crop production. Seed treatment is one of the easy way to manage the pest incidences in crop production besides, serves purposes such as easiness in sowing, breaking dormancy, hardening the seeds, enhancing nitrogen fixation and solubilizing phosphorus. Seed treatments alone cannot always be relied on to control all diseases against which they are directed. They are not panaceas of all ills. Sometimes a seed treatment will of itself be entirely effective in preventing disease, but more often it is only one step in a series of disease control practices.

