

GOOD NEWS FOR FILIPINO FARMERS: INCREASE YOUR YIELD WITH LESS FERTILIZER

UPLB Trichoderma Inoculant Reduces Use of Fertilizer by Half By: Dr. Virginia C. Cuevas

A new technology from UPLB is the answer to the rising cost of chemical fertilizers. The new inoculant consists of three species of *Trichoderma* cultured in organic substrates and can be used as seed coating or soil inoculant. When seed -coated, *Trichoderma* immediately colonizes the root hairs and increases root growth. It then makes mineral nutrients available and helps in their efficient absorption. Balanced nutrition of crops is achieved since the fungus helps in supplying the crops with both macro and micronutrients. Fertilizer needs of crops are reduced by 30% -50%. Yield increases rather than decreases with fertilizer reduction. The farmers can save up to two to three bags of chemical fertilizer. It is important that the fertilizer use be reduced to get the full benefits of the technology. **If fertilizers are not reduced, there will be no yield increase and no benefit from the technology will be observed. The fungus simply does not do its job if abundant fertilizers are present in the soil.**

In addition to its fertilizer value, UPLB Trichoderma inoculant is also an effective biocontrol agent of diseases caused by soil-borne pathogens such as damping - off diseases of seedlings, durian die back and corn sheath blight. Thus, farmers get twin benefits with use of the inoculant, less fertilizers and less chemical fungicides.

UPLB Trichoderma inoculant is available in the market under the trade name **BioCon**, produced by Tribio Technologies, Inc. which has a licensing agreement with UPLB for the mass production of the inoculant

How to apply Trichoderma inoculant:

A. Palay

1. Soak palay seeds for 24hours. It would be better if the seeds will be placed in sacks.
2. Drain excess water. Then mix one pack (250 g) *Trichoderma* inoculant for every 20 kg (hybrid seeds) or 40 kg (inbreed seeds). Make sure all seeds are coated. If inbreed seeds will be used, 2 packs of inoculant will be needed for one hectare rice land. If hybrid seeds will be used, one pack inoculant is enough for one hectare.
3. Incubate the mixture for 8 - 18 hours. Open the sacks so that heat will be released. Keep the seeds moist all the time.
4. Sow the seeds either directly in the field or in seedbeds.
5. Reduce the use of fertilizers by 50%. Split application is better with half- reduction of fertilizer use done at basal, side dress and top dress applications.

B. Corn

1. Soak corn seeds in water for two (2) hours to wash away the fungicide coated on the seeds.
2. Drain the excess water. Mix 1 pack (250 g) inoculant in 18 kg corn seeds, good for 1 ha.
3. Make sure all seeds are coated with the inoculant.
4. Sow the seeds directly on the field along the furrow in straight line. (Here it is assumed that land preparation is already finished).
5. Place only 1 to 2 seeds per hill since it is expected that there will be almost 100% seed germination with the use of *Trichoderma*.
6. Use only half of the recommended fertilizer. Split application is better with half - reduction of fertilizer use done at basal, side dress and top dress applications.

C. Vegetables

C.1. For those using seedbed like cabbage, pepper, multiplier onion, tomato

1. Suspend one-half pack (125 g) inoculant in 3 gallons of water. Stir continuously to keep the inoculant suspended in water. Drench the seedbed with the mixture.
2. Apply organic fertilizer at the rate of 0.5 kg/m² of seedbed.
3. Apply insecticide around the perimeter of the seedbed. Ants are strongly attracted to the carrier of the inoculant.
4. Allow 3 – 5 days to pass before seed sowing. This period will allow *Trichoderma* to kill all soil-borne pathogens in the seedbed and decompose organic matter in the soil and provide nutrients to the seedlings.
5. To avoid weed competition with the seedlings, pre-emergent herbicide can be applied on the 1st day of the soil application on the seedbed.
6. On the day of seed sowing, soak seeds in water for 2 hours. Drain excess water. Mix thoroughly one pack of inoculant per one can of seeds. Make sure all seeds are coated. Sow the seeds in the seedbed.
7. Almost all seeds will germinate and majority of the seedlings will survive. Thus farmers do not need to give allowance for damping off diseases.
8. Seedlings grow fast and produce longer and more robust roots. There is a need to transplant seedlings earlier than usual.
9. Use only one-half the recommended rate of fertilizer to the crops.

C.2. For direct-seeded vegetables

1. On the day of seed sowing, soak seeds in water for 2 hours. Drain excess water. Mix thoroughly one pack of inoculant per one can of seeds. Make sure all seeds are coated. Sow the seeds directly in the field.
2. Almost all seeds will germinate and majority of the seedlings will survive. Thus farmers do not need to give allowance for damping off diseases.
3. Seedlings grow fast and produce longer and more robust roots. There is a need to transplant seedlings earlier than usual.
4. Use only one-half the recommended rate of fertilizer to the crops.

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