Experiences on EM Technology in the Philippines

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The Philippines as an agricultural country has been promoting the use, production, and marketing of bio-organic fertilizers to partly replace chemical fertilizers in its production system. The reasons for this are partly environmental, and partly economic. Agricultural systems which adopt reduced use of agricultural chemicals and increased use of organic inputs are seen as more sustainable, more environmentally friendly and more cost effective than systems based on chemical alone. They are particularly important for low-income farmers, who often cannot afford enough chemical fertilizer to supply all the nutrients their crops need.

The introduction of EM technology in Philippine agriculture can be viewed as an excellent opportunity to avail of a product that has successfully been proven in many countries of the world, especially in member countries of APNAN. However, one has to understand that under the Philippine setting, prior clearance from the Fertilizer and Pesticide Authority is needed before any new fertilizer/pesticide material can be marketed locally. Thus, to obtain such clearance, some efficacy tests on EM and Bokashi were conducted during the past cropping seasons.

Comparative field trials were done on such crops as rice, potato, cabbage, lettuce, tomato, onion, and soybean. Moreover, pathological tests for any harmful microorganisms, were done for some selected crops and animals.

Results obtained from initial trials indicate different responses among crops, in terms of yield and occurrence of some diseases. Grain yield of transplanted rice during the 1994-1995 DS cropping was highest in plots treated with 50% of the recommended inorganic fertilizer (120-40-40) combined with EM and Bokashi. During the 1995 WS, the grain yield obtained from the treatment with 25% recommended inorganic fertilizer plus Bokashi and EM1 was comparable with the full recommended inorganic fertilizer. During their 1995-1996 DS cropping with wet direct seeded rice, the highest grain yield obtained was from the treatment with 50% inorganic fertilizer plus Bokashi and EM1.

For potato, the tuber yield obtained from either Bokashi alone or EM1 alone was comparable with the plot treated with the recommended inorganic fertilizer (240-60-60). It was also reported that significantly lower potato leaf blight (PLB) infection was observed in plants sprayed alternatively with EM1 and fungicides compared to fungicide alone in farmers practice.

For lettuce, while the imposed treatments did not show significant differences in terms of number and weight of lettuce heads, it was noted that Bokashi alone or in combination with EM1 reduced the incidence of soft rot disease compared with farmer's practice (240-60-60 + chicken manure).

Results obtained from cabbage showed that plots treated with EM and Bokashi gave significantly higher yield compared with farmer's practice (NPK + chicken manure). Similarly,

the incidence of soft rot disease was also noted to be lower on plants treated with EM and Bokashi.

For tomato, the generated data from initial field trials showed that Bokashi and EM1 when used singly or in combination with each other or in combination with inorganic fertilizer significantly: (a) increased the crop height over untreated control; (b) increased mean fruit weight over untreated control; and (c) increased the total marketable fruits harvested during the crop season.

The initial results obtained from the efficacy test on onions did not show significant effects of EM and Bokashi which can possibly be attributed to the failure of the researcher to incorporate the material during the desired time of application.

The efficacy test on soybean was conducted in seven (7) selected locations in the country during the 1995-1996 dry season cropping. Different responses to EM and Bokashi were obtained across locations. There were locations where the application of EM and Bokashi gave significantly higher yields while in other locations no significant response were obtained, Moreover, results from some locations were severely constrained by unexpected climatic aberrations e.g. drought, water logging, etc.

Results of biological efficacy test indicate that application of either EM or Bokashi showed no pathological effects on crucifers, tomato and potato. Similarly, no disease causing organisms were found in the series of pathological tests done on laboratory animals.

Some continued efficacy testing of EM and Bokashi materials appear to be in order to further confirm the results obtained todate.