Effective Microorganisms (EM4) Technology in Indonesia

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Introduction

Agricultural chemical have played an important role in stabilizing food supply, maintaining product quality and improving agricultural productivity. Chemical such as BHC, DDT, Parathion, Organo mercuric fungicide (all of which are now prohibited) and other organo synthetic products were introduced after Word War II.

In Indonesia, crops are highly liable to be damaged by diseases, insect pest and weeds. At present time the control of pest (disease and insect) and weed is mainly achieved by spraying with chemical pesticide. When chemical pest control was first introduced, it was so effective that there seemed to be little need for an alternative .

However, after some years scientists became aware of growing problems of environment pollution and development of resistant to pest created by the chemicals. A new interest in biological methods and environmental conservation methods, so called an integrated pest management implementation (IPM) was developed. Following the IPM concept, the Indonesia Society Kyusei Nature Farming (ISKNF) introduced Effective Microorganisms (EM) in agricultural system.

EM Technology in Indonesia

The technology of effective microorganisms (EM) have been adopted in Japan since 1980, after 15 years of study. In Indonesia, studies in EM started in 1989. EM was applied on various crops with different agro-ecological background. The results of the studies showed that EM gave positive effect in preventing the pests thus increasing the productivity and quality of food without endangering the environment.

In August 1991, a seminar on EM was held at the National University, Indonesia. Through this seminar, EM technology was spread to the public and farmers in particular. Prof. Teruo Higa was the man responsible for this EM introduction in Indonesia.

The first trial on the use of EM in Indonesia was carried out on citrus orchard in Sukabumi, West Java, owned by Miss Soenar Soeraputra. The condition of fruits in the field were bad and trees were bearing little fruit. With EM application, results began to show after three months of application. Fruit production was increased from 150 kg to 400 kg/700 trees. In other trials, yields of tomato and soybean were also increased by about 133% and 114%, respectively.

Effective Microorganisms (EM-4) was registered in Indonesia in 1993 by the Directorate of Food Crops - Indonesia Ministry of Agriculture. On April 12-13, 1993 a seminar on sustainable agriculture was held at Jatisari Pest Forcasting Centre, West Java. The discussion was concentrated on the utilization of EM technology in Indonesia in the production of safe and high-quality foods and agricultural products. The seminar concluded that EM is needed in Indonesia for pests management because EM has pesticidal qualities and at the same time able to increase the fertility of soil, and increase the production of agricultural products.

Implementation of EM in Farmers Field

Generally, farmers in Indonesia always use chemical fertilizers for increasing production and

chemical pesticides for controlling pests if the population reach to the ETL.

Introducing the nature farming system to Indonesian farmers means changing the previous conventional farming system. However, to obtain a significant results and economic return from nature farming (using EM), the farmers have to wait for a few seasons before positive results are obtained. More field experiments and demonstration plots in farmers fields should be conducted on various crops and under different agro-ecosystem.