Some Aspects of Kyusei Nature Farming and EM Technology in China

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Abstract

The Peoples' Republic of China is fast developing into a nation using Kyusei Nature Farming (KNF) and EM Technology. This is principally attributed to their familiarity with organic farming and the availability of waste material, that can be used an manures. Many nature farming projects in many regions of China currently use EM for the production systems. Thus the presentation highlights the use of EM in the production of crops such as vegetables and fruits, eggs, animal feed and in swine farms. The experiences of some important projects are presented.

Introduction

The Peoples' Republic of China is a very important country in the world today. Its growing population creates a larger market force in the global economy. In addition, the country is fast developing into a great industrialized nation.

Although China is fast developing into industrialization, it is basically an agricultural country. It has a significant rural agricultural base. Hence, agriculture, including livestock and aquaculture is the foundation of the society of China.

The agriculture of China is centered around small allotments, where organic matter plays a predominant role in maintaining fertility. Very good examples of integrated organic based farming systems, where crops and livestock play an integral part can be found in many parts of this great country. However, as in all organic farming systems, productivity is low, and farmers strive to make some profit after meeting household food requirements. This has led to situations of low incomes at household levels. Improvements in terms of fertilizers and other agrochemicals are not within the reach of these farmers.

The total agricultural sector of China is not rurally based. There are large extents of land being cultivated on a communal basis. Large livestock enterprises also exist. These are based on the extensive use of agrochemicals., Hence they face problems of pollution, degradation of land, diseases and pests and lack of sustainability.

KNF and EM Technology in China

The concepts of Kyusei Nature Farming and EM technology was introduced into China in the 1980s. The program was initiated through the International Nature Farming Research Center of Atami, Japan in association with the China Agricultural University in Beijing, and the EM Research Organization in cooperation with the Academy of Soil Science in Nanjing. The objectives of this program were the concepts of Mokichi Okada, to improve the rural based organic farming systems and help the larger units to overcome their problems of pollution and disease. In addition, the program envisaged cleaning of the environment.

Acceptance of EM in China

The concept of KNF, as advocated by Mokichi Okada was founded in the 1930s. This method of farming was strengthened by the inclusion of EM, developed by Professor Dr. Teruo Higa in Okinawa, who has close ties with China.

However, Chinese researchers working on farming systems and microbiology state the efficacy of EM. Research and development programs on EM are currently being conducted by researchers at the Academy of Soil Science in Nanjing, Nanjing Agricultural University and the Jiang Su Agricultural Research Station. Their reports indicate that EM of China is a mixture of naturally occurring microbes. They have identified species such as photosynthetic bacteria, lactic acid bacteria, yeast and ray fungi, all of which are used in the food industry of China. Hence they classify EM as being safe.

Other research projects of the Jiang Su Agricultural Research Station highlight that EM has a very significant role in the agricultural sector of China. They report that the EM made from microbes of China is safe, simple and has the capacity to produce a significant quantity of food without agrochemicals. They state that EM has the capacity to clean the environment and produce food in a healthy and sustainable basis at a lower cost. Hence, at the present time, EM is accepted as a superior technology for the agricultural programs and environmental management in China.

Current Programs on EM Technology

The development of the program on EM was rapid in China, due to the proven benefits that were observed in a very short period of time. The demand for EM grew rapidly, especially among the larger agricultural units. Hence, at the present times, 11 factories are producing EM in China. These are located in different parts of this vast country. EM is distributed from these factories to farmers and industries. However, the factories cannot cope with the demand and plans are being developed to expand production of EM in China.

The role of EM in China is multifaceted. In cropping, EM is used in rice, vegetables and fruits. All farms, both smallholder and extensive units report that the results are significant. Yields of crops such as tomato, egg plants, strawberries and rice have increased substantially, and the quality of the products, especially of the horticultural species are enhanced. The reports identify that shelf life of these species are also prolonged.

EM plays a greater role in the animal husbandry sector in China. Most animal husbandry units of China are in a poor condition, with extensive disease problems and foul odors. The use of EM has overcome these to a significant extent. Poultry and swine farms in the Nanjing region use EM in feed and drinking water. EM is also sprayed to control foul odors. A report of one large poultry farmer indicates that with the use of EM, the productivity has increased significantly. The number of deaths has reduced, with a very low incidence of diseases in the bird population. Feed conversion efficiencies have been enhanced. The eggs are larger, have been certified as being organic and thus fetch a higher price. The manure of birds is easily composted into a very good fertilizer. All this increases incomes at a low cost.

The role of EM in swine production is also gathering momentum. It is used in feed and water and is sprayed to overcome odor. A program where mini pigs are grown for a speciality market uses EM extensively. The report of this project at the China Agricultural University states clearly that EM enhances growth of mini pigs, reduces disease, fly and dung problems. This has led to higher profits and the unit is now used as a demonstration site for the farming community.

The role of EM is or limited to the agricultural sector alone. Large quantities of EM are used by factories to treat waste water. A large tapioca factory, which had problems of discharging waste water uses EM very effectively. The water is collected in ponds, extended EM is added and treated and the water released. The quality of water is enhanced by this treatment and the local authorities have granted the factory permission to release the treated water to natural waterways, due to the lack of pollutants and toxic effects. This project has paved the way for expanding the use of EM in other industries.

Urban wastes are major problems in China. Household wastes, including sewage cause many health hazards and environmental problems. Projects are being conducted to use EM to treat these wastes and develop good fertilizers. The success of these projects are clearly visible, and several cities are using EM to treat garbage and sewage. This, with time, will lead to significant improvements in the quality of life in these cities.

The program on EM in China is not restricted to research and development alone. In the recent past, a training school has been established in South East China. This school trains young boys in the science and practice of KNF and EM technology. The programs are well conducted and the students after completing the 6 or 3 months programs are well trained to act as extension officers or adopt EM technology in their own farms.

Conclusions

The program on KNF is gathering momentum in the Peoples Republic of China. The project is self sustaining as EM is sold to the users. The demand for EM is developing, due to the proven benefits on the field and the backing of scientific evidence.

The success of EM in China is also attributed to the fact the technology developed EM from microorganisms isolated from the different regions of China. No genetically engineered species are introduced, nor are any microbes imported from other countries. These facts are further supported by the success on farms and in industries. Thus, the program on KNF and EM Technology is growing in the Peoples' Republic of China, and the acceptance of this simple, cheap but safe sustainable technology by the State is envisaged in the next few years.