

# Rainbow Farm

## Its Object, Research and Activities

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### 1. Introduction

On a day in November 2000, Tawan Hangsoongnern and Shintaro Sugiyama visited an organic orange farm of Mr. and Mrs. Prapat in Lanphan. We looked at his study on insects of orange by incubating larvae, and she succeed growing organic orange by spraying her special liquid made from fermented premature organge, waste of their garden. They could control the pests of orange garden, and succeeded to make self-sustained economy of organic orange garden. We were much impressed on this visit, and talked that we should proceed more our organic study in Thailand. Just at that time small rain stopped, and we saw a marvelous rainbow in the sky, looked like a symbol of the bless of God.

We applied to the help of Toyota Foundation for the study on natural resources remembering that rainbow by the title of “(2<sub>nd</sub>) Studies on organic farming in Thailand for the completion of the techniques”, and passed it luckily. Rainbow Organic Farm was opened in May, 2002 as a fruit of our study works.

### 2. Objects of the works in Rainbow Farm

Rainbow Farm has two directions of works, (1) is studies and development of the techniques of organic farming in tropical areas which is different from that of temperate

areas and (2) is to extend those techniques to Thailand, and if possible, to other tropical countries, which need organic farming. Our attitude for studies and making techniques must be scientific, and extension of organic techniques must first to help small farmers to become self-sustainable.

Type of our farm is a kind of integrated farm, which grows plants and animals, of plants rice, vegetables, fruit trees etc, and of animals pigs, ducks, fishes etc. in respecting thought of “Tessary mai” (The new method) by the King of Thailand.

### 3. Activities

May 1997 S. Sugiyama was invited by Payap University to study and teach organic farming sent from Keisen University on Japan. He started organic growing of vegetables at Donpao Village in Chiang Mai.

Oct. 1998 Received help of Toyota Fund. Sinth Sarablo, S. Sugigama, “Studies on organic Farming in Thailand, its techniques and Background (1998 – 2000)”

Oct. 2000 do & Tawan, H. “(2<sup>nd</sup>) Studies on organic farming in Thailand (2001-2003)”

May 2002 Opening of Rainbow Farm at Hoinamrin, Maerim, Chiang Mai. Organic farming of rice 9000 m<sup>2</sup>, vegetable, fruit and animals (pigs, ducks and fishes).

May 2004 Rainbow organic farm fellowship in Japan (NPO), director Mr. Tatsuo Shinriki was settled in Tokyo.

May 2004 Paddy field 8000 m<sup>2</sup> was bought at the side of the farm.

Sept. 2004 Tawan, H. visited Japan to observe organic farming.

Oct. 2004 Seminar of organic rice by farmers and technicians at Mc Kean Rehabilitation Center.

Nov. 2004 Inten. Conference of Farmers Dialogue at Chiang Mai University.

2001 – 2004 extension leading of organic farming at Denchan Village, Maerim, for 100 rai areas of families.

2000 – 2004 finding of the effect of biodiversity by an experiment of mix-planting of vegetables in Thailand to control agricultural pests and its development with time in organic farming.

Nov.2004 success of organic growing of KDML 105, with no disease, few insect harm, high yield and higher quality of rice, food by the effects of soil microbes in the tropical paddy field.

#### 4. Results of our study and extensions of organic growing

##### 1. Biodiversity upon and under the earth control harms of agricultural pests in organic farms

When Sugiyama visited at organic coffee farm in Philippines, where 7 kinds of fruit trees of coffee and others were mix-planted, there was no harms of diseases and insects. He thought that the biodiversity of tropical area will not allow one or two kinds of the pests to develop predominantly there, which is the meaning of “disease” or “insect harm”. In his experiment of organic farm in Thailand of mix-planting of different kinds of vegetables, in the First crop many kinds of pests appeared, but in later crop by crop pests declasseed and after about 1.5 years the rate of harms decreased about 20% of the first crop and after 3 years it attained to 6% by my experience and other organic farmers around Tokyo, the harms decreased to about 20% after 3 years later from the start of organic farming. Now the mean temperature of year is 15 °c in Tokyo and 25 °c in Chiang Mai, difference between them is 10 °c. These data fill the formula of  $Q_{10} = 2$ , that is, when temperature 10 °c higher, biochemical activity of organisms increase double (Sakamura 1952). This fact shows that in organic farming the environment of biodiversity of organisms upon and under the earth can stop agricultural pests basicly in Chiang Mai and in Japan. And he thought if such environment to stop the pest harms develops with time? The answer was “Yes” already assured by C. Darwin (1859) and M. Kimura (1988). That biodiversity develops with time. And many farmers, when their organic farm attained to such state of the pest decreased, to not stop to continue their organic farming.

##### 2. Use of useful microbes to manage fermentation of organic materials and to keep the health of animals

We use useful microbe EM (Janna) and a farm microbe which Mr. Han Kyu cho (Korea) taught, when needed. Rainbow farm usually use EM mixing with molasses to make solution in water and let pigs and ducks take it with food. We don't give animals

vaccine but they have not epidemic diseases, and dung of them have no bad smell and fly coming.

Duck's dung treated by EM are effective to generate blue green algae (BGA). When that is sprayed into paddy field, BGA can catch air nitrogen and gives control of nitrogen supply to rice plant.

### 3. Study on the of soil microbes to grow rice

Rainbow Farm grows rice with EM. Treated duck dung as fertilizers giving at after transplanting and at tiller stage of rice each 2 g/m<sup>2</sup> total 4 g/m<sup>2</sup>. Then BGA. Photosynthetic batrias and earth worms generate in the paddy field, which lead growth of organic rice suitably with increasing ear number & ear size, no disease, few insect harms and fewlodging, giving not only special high yield, but also high quality of rice, specially giving aromatic smell and good (sticky) taste of rice food to KDML 105, Jasmin rice.

The same or better results were get by organic rice in Denchan village of Amp. Maerim under the teaching of us suing animal dung treated by the farm microbes in the farm of after growing of soy bean (some farms did not use animal dung).

4. We are proceeding breeding rice of black rice from local old style to modern ones, and Jasmin Rice to become non sensitive to day length.

5. Anticipate and hope for Rainbow farm.

In near future we want to improve our techniques of organic farming by integrated farming to make completely well, and to start education work to young farmers by training with repeated courses of a few weeks.

And also we want to extend these study and training course to neighboring countries as Myanmar and Laos for the happiness of small farmers in villages. Every work of us we want to proceed following the will of God for truth and love, asking power and knowledges from Him by continuing worship of Christianity.