Dr. Cho Han Kyu

Dr. Cho Han Kyu gives technical guidance in creating agricultural materials from the obtainable natural resources of an area, making full use of local conditions and autochthonous microorganisms. Currently he is the leading expert in the field of Natural Farming, both in Japan and South Korea.

Background:

Born in Korea in 1935, he has been engaged in farming since the age of 14. He came to Japan in 1965 for training in farming and learned at Yamagishi Association for three years. During this time he learned about natural poultry, gaining knowledge on microbes and enzymes, and the theory of the nutritional cycle of crop plants. After going back to Korea, Dr. Cho Han Kyu practiced these methods with local materials without having to depend upon chemical fertilizers, pesticides or purchased materials. He is currently the president of both the Korean Natural Farming Association (consisting of 20,000 members) and the Japan Natural Farming Association (600 members). In addition to teaching on a training course to both Japanese and Korean farmers in the field, he travels the world over as an instructor of the Asian Productivity Organization - APO.

The Natural Farming that Dr. Cho teaches throughout Asia is a farming method that is an extension of organic farming in the broad sense. In general, organic farming refers to a farming method whose assessment is based on whether or not chemo-synthetic pesticides and chemical fertilizers are used for a certain period of time during growth, and whether or not organic materials are used instead of chemical ones. However, Natural Farming is more than simply shifting from the use of chemical materials to organic ones.

It tries to enrich the soil so as to create the foundations for the growth of crop plants, using autochthonous microorganisms that form the natural resource of the area. It then considers manuring/feeding the proper amounts at the right time according to the physiology and ecology of the crop plants/farm animals. In other words, it is a farming method with observation-based practice.

In particular the fundamental principle of Natural Farming is to create the necessary materials by not depending on the purchased ones. It maximizes the geotechnical
conditions and creates materials from the many different natural resources of an area. The aim in shifting from total dependence on imported agricultural materials to the creation of them is to achieve self-sustaining farm management. In short, the Natural Farming is a farming method that is ‘developed by farmers, practiced by farmers and disseminated by farmers’ for their own benefit.

The main features of Natural Farming are as follows:

1. The basic concept of Natural Farming
   1.1 To establish ecological harmony:
   Natural Farming tries to establish ecological harmony in the soil, air, water etc. It enriches autochthonous microorganisms in the soil and improves the environment of the rhizosphere layer. Furthermore it tries to make crop plants that are proof against unseasonable weather, heat or cold, and continual rain or drought.

   1.2 To bring out the vitality of crop plants and farm animals:
   - Farmers observe the constant change in the environment and make flexible decisions according to that change, such as taking the proper care of crop plants.
   - In addition to the establishment of ecological harmony, Natural Farming tries to enhance the variety of crop plants and farm animals by proper farming and breeding methods. This involves any method that allows for the minimum use of chemosynthetic pesticides and chemical fertilizer.

   1.3 Harnessing the resources of the land:
   Farmers, making full use of near-at-hand resources, create the necessary materials for production. This also cuts down the cost of production.

   1.4 The combination of livestock breeding with crop production to promote sustainable farming:
   Here, Natural Farming promotes the combination of tasks, such as poultry farming or pig farming, with crop production. The fermented and matured organic matter from the henrun and piggery can be combined with accessible materials of the land. The circulation of these enables sustainable farming, maintains the sound rural society, and conserves the environment.

2. Three principles of Natural Farming
To give vitality to the crop plants favourable soil conditions must be created for their growth. In order for crop plants to grow normally, it is necessary to develop an environment with suitable soil conditions for the absorption of proper amount of the nutrients at the right time. This runs counter to the idea of basal fertilizers that applies a necessary amount of fertilizer in advance.

2.1 The arrangement of favourable soil conditions:
- Natural Farming is based not on cultivation by machinery, but by autochthonous microorganisms and small animals. Farmers just arrange the conditions so that such organisms and small animals can be active.
- The use of rice straw, fallen leaves, rye etc., as mulch instead of plastic mulch, in order to prevent weeds growing. What is achieved is an environment of mutual live-and-let-live for both crop plants and the soil. The fine condition of soil under mulch will then become fertile as a home to organisms and small animals.
- The creation of a home for autochthonous microorganisms by applying organic manure on top of the soil, and adding further organisms obtained locally. This recovers diversity of microorganisms that will enrich the soil.

2.2 The arrangement of favourable seed conditions:
The basis for the healthy growth of a crop plant is seed. Seed treatment is required for improved seeds in order to increase their vitality. Improved seeds aimed at increasing yields on the assumption of pesticide use, have a poor ability in adapting to the natural environment.
- As for seed treatment, seeds are soaked for the right period of time depending on the kind of crop plant. They are put in a mixed liquid of Tenkeiryokuju (to be explained in the following part), carpology enzyme (fructi-ase), brown rice vinegar and natural mineral liquor. Then the seeds are applied to the soil after draining off the water.
- This treatment increases the vitality of seeds, making cotyledons thicker, and the crop plant grows healthier and disease-resistant.

2.3 Bringing out the potential of the crop plants:
- Base fertilizer is not applied so that germination occurs by the nutrients of albumen, taproots and secondary roots develop with dense fibril, and plants will grow short but leaves thick.
- Bokashi compost and homemade manure are the major materials applied as the
additional fertilizer and the alternative to chemical fertilizer. This will strengthen the digestion and the absorption ability of the rhizosphere.

- As for chickens, baby chicks must be fed brown rice instead of mash feed.

3. The five basic materials of Natural Farming

3.1 Tenkeiryokujyu (Green solution of the gift from Heaven):
This is an extraction of the growth point of tansy and cicely using muscovado, and is a vegetative enzyme solution that contains acidophilus and yeast. It brings about vitality in plants and animals when applied to them in a mixture diluted 500 up to a 1000 fold.

3.2 Chinese medicine as nutritional supplement:
In order to extract the essence, first ferment Angelicae radix, licorice and cinnamon, and then soak them in shochu (distilled spirit). Mixed at the ratio of 2:1:1 and diluted up to a 1000 fold, the essence mix makes plants stronger and disease resistant.

3.3 Acidophilus:
Expanded culture of acidophilus obtained from rice-water is diluted 20 to 30 fold and applied to weakened leaves, or used for making Bokashi compost.

3.4 Autochthonous microorganisms:
- With Natural Farming methods microbes are not introduced from outside, but basically the autochthonous microorganisms existing locally are grown and used.
- Autochthonous microorganisms are taken from local forest floor, or leaf mulch from the bamboo grove, or rice stubble at the paddy field after mowing, and diluted up to 1000 fold and used for making compost or Bokashi compost, or applied to seedlings.

3.5 Yeast (carpology enzyme and vegetative active enzyme):
The carpology enzyme extracted from the fruits of Akebia quinata or figs by using muscovado helps fermentation.

3.6 Three subsidiary materials:
- Amino acid from fish (liquor made from fish waste)
- Natural calcium, which is an extract of such fish as sardines (purchased, as it is not obtainable from farms)
- Brown rice vinegar
4. Fertilizer management based on the theory of the nutrition cycle

Fertilizer is applied according to the principle that crop plants have growth processes just as human beings have infancy, adolescence, prime and senescence. For example, when a woman is pregnant she has morning sickness and needs something sour. Similarly, the stage of anthogenesis is similar to pregnancy, and it is best to give something sour, say phosphoric acid as fertilizer. Natural Farming methods are a way of applying the proper amounts of fertilizer suitable to the different stages of growth of the crop plant.

Dr. Cho attracts people wherever he goes. Young, competent farmers are eager to learn from him because his method is really practical and it leads to higher productivity and the improved quality of the final product. As he speaks from the vantage point of neglected farmers, his ideas win the sympathy of many. At the age of 70, Dr. Cho wishes to pass his Natural Farming methods and skills down to as many farmers as possible. He hopes that they will achieve stable farming management within a sustainable global environment. We endorse his recommendations through the activities of the AJPN.

If you need more information about his method and etc.,
http://janong.com/#
Hiroaki and Hiromi Ebara

Responsible for various programmes of collaboration with the general public to consider food, agriculture and environment together

Background

Hiroaki Ebara used to work as a member of the Japan Overseas Cooperation Volunteer (JOCV) in Zambia, and Hiromi was also a JOCV member working in Malawi. They then became NGO staff and worked for the rehabilitation of rural Ethiopian villages from the aftermath of frequent civil wars and draughts. They promoted afforestation, agricultural education and maternal and child health education. After returning to Japan they took over family farming and made Gabare Farm. (Gabare means a ‘farmer’ in Ethiopian language and ‘Hang in there!’ in a Japanese dialect.)

Production: 50 kinds of vegetables, eggs and rice
Farm Size: 150 ares of paddy field, 40 ares of vegetable field, 20 ares of grain field, 300 chickens and 50 ducks

Teikei Customers: 30

1. They offer their customers the opportunity to discuss food, agriculture and the environment.

Mr. and Ms.. Ebara believe that agriculture is not merely crop production but has a philosophical meaning. They aspire to achieve social reform through agriculture with the cooperation of their customers. The following is their messages drawn from their website (http://www.ksky.ne.jp/~gabare/new/welcome1.html):

'Gabare Farm offers a small forum where people discuss food, agriculture and the environment in order: 1) that children can grow in a relaxed atmosphere; 2) that rich, natural land may be protected and the local environment recovered; and above all - 3) to make the food that we eat every day safe.

With Japan’s low self-sufficiency in food production at 40% (in calorific value basis), and its complicated distribution system, it is not easy to know where the food we
actually eat comes from. The vegetables of countries far away are grown using quantities of pesticides, treated with residue-prone post-harvest chemicals, and imported using a lot of fuel. The environment of exporting countries is often getting worse. For example, in the US where a single crop for export is made, there is serious soil erosion, a decrease in the underground water level, and the destruction of forest.

At the same time the farmland of Japan is being rapidly reduced, or returned to desolation in mountain villages, or altered for housing in cities. This change is causing numerous environmental and social problems. What is more the culture and wisdom of farming in Japan is rapidly being forgotten. Mr. and Ms. Ebara do not want children to grow up only with the memories of TV programmes and computer games. They want them to yearn for the sea, rivers, paddy field and vegetable field, Chinese milk vetch flowers, killifish, loaches, beetles and earthworms. They began organic farming because they wanted to give children safe food and a safe environment, and encourage them to have beautiful memories so that they can grow up without unnecessary anxieties. Their organic farming is not simply a technical skill, but it is a symbol of the reconstruction of a modern lifestyle. They want to keep working so that people will come to realize that there should be potatoes of different sizes and shapes on the same vine. It is only the industrialization of food production that has led to a standard and unified product that we have got used to. Mr. and Ms. Ebara want people to regard everything as a gift of the land, whether we talk of curved cucumbers or split radishes, just as we used to do in the past.

2. Farming techniques

‘We have no special techniques to teach others,’ Mr. and Ms. Ebara humbly say. Indeed, what they practise is basic organic farming methods.

1) Bokashi compost.
Mix fish waste and bean curd refuse with rice bran and mountain soil. Turn over a layer of the soil every week and the compost can be used after three weeks. This Bokashi compost is mainly for use as an additional fertilizer. They never use bean curd made of genetically modified beans.

2) Domestic duck.
As for weeding and removing worms, they buy the chicks of domestic ducks and keep them in the paddy field between June and August. Their paddling will constantly supply oxygen to the roots of rice, and the soil becomes smooth. No pesticide is needed since ducks’ frequent picking at the base of rice hills will shake off small insects from them. It does require some labour and cost, however, in letting the ducks get used to the water and feeding them every single day. In Gabare Farm customers and children have a chance in winter to slaughter and eat the ducks. The experience is new to most Japanese people, because it is usually not necessary for them to see the place where meat is produced, or where animals are slaughtered, even though they need to consume meat. Mr. and Ms. Ebara hold this event in the hope that people will appreciate the lives of animals that sustain human life, and to recall these natural human processes. Ducks are an essential part of their farm, and are the medium for uniting customers with the Ebara’s philosophy.

3) Rotation.
They avoid as far as possible continuous cropping of plants of the same family, as it causes a loss of specific nutrient in the soil such as minerals, increase in the number of insects and diseases, and decrease in the yields and the quality of crops. Another point to note in rotation is to create variety in root-spread type. They try to grow deep-rooted crops and shallow-rooted crops alternately. This idea is not new at all and is a universal one for the Japanese organic farmer.

3. Their relationship with customers

Mr. and Ms. Ebara produce a weekly newsletter ‘Green Information’ for their customers. It includes news of their farm, politics, and information on the international situation and the natural environment. They made Gabare Farm the place to send out messages for those who want to make the world a better place to live. However, they cannot always talk to their customers directly. Thus this newsletter is an important medium for communicating with them. Customers will know what Mr. and Ms. Ebara think about and in what ways they are engaged with agriculture. The newsletter makes it possible for customers to share ideas and concerns whenever they feel they have the need to. The vegetables sent by them are not just a source of food for the recipients. They hope they will have a sense of solidarity in being part of the Ebara’s social reforms. Mr. and Ms. Ebara are known to be very efficient in sending these messages.
There are several big events open to customers such as rice planting in June, rice reaping in October, and duck slaughtering in December (called 'Eating Life). They always welcome participants from outside. Therefore the customers of Gabare Farm are not merely consumers of their products, but they are encouraged to join what they call 'production of life.' They learn about life’s mechanisms from hands-on experience with the soil, the smell of the wind, their own sweat, and the pleasure of harvest; all things which cannot be learned from books. They gain a deeper understanding of what Mr. and Ms. Ebara wish to achieve, and as a consequence they come to feel like joining in with their social reforms.

4. The program for children.

As we can see from the message on their website, Mr. and Ms. Ebara are eager to give children the opportunity to experience a rich, natural environment. This program tries to achieve this objective. It is a children-targeted program held monthly on their farm, and is open to 15 families per year. The table shows the program in detail.

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Date</th>
<th>Activities for children</th>
<th>Additional events and other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>April</td>
<td>24</td>
<td>- Play in the field of Chinese milk vetch</td>
<td>- Make pressed flowers of Chinese milk vetch and send them to Iraqi and Afghan children</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>22</td>
<td>- Play among the creatures in the paddy fields</td>
<td>- Observe creatures in water in the paddy fields</td>
</tr>
</tbody>
</table>
|      | June  | 26   | - Weeding in paddy fields  
- Helping ducks | - Rice planting |
|      | July  | 24   | - Vegetable leaves quiz  
- Helping ducks | - Games using vegetable leaves |
|      | August| 28   | - The weeding project of summer  
- Baby rice | - Observe weeds and rice plants |
|      | September | 25 | - Taking insects from vegetables  
- Seeding of winter vegetables | - A separate event of harvesting rice |
|      | October | 23 | - Rice harvesting, threshing and rice hulling | |
|      | November | 27 | - Making ropes and wreath with rice straw | |
|      | December | 25 | - Making rice cakes (mochi) | |
2005 | January 22 | -Making *miso* paste, fermented soybeans (*natto*) and *tofu* | Additional event:
Duck group: Slaughter the ducks responsible for rice growth and make duck soup etc.

| March 3 | - Making a rice cake containing mugwort (*kusamochi*) |
| March 26 | - Seeding vegetables |
| In rainy weather alternative activities such as making noodles etc. will be held. |

It is nice to have a close relationship between participant families and Gabare Farm. Perhaps the most important aspect of the programs is to open up their way of life and agricultural style to others, and to offer a place for people to learn from each other. Through this exchange the Ebaras can see and share the needs of a normal family of salaried workers.

These programs may seem to target children, yet it is rather the parents who get more excited than their children when they participate as a family. In some cases children are a medium for parents to join the programs. If the programs declared that they were aiming at the discussion of social problems, people may hesitate to join. On the other hand targeting children makes such motives more accessible. It also attracts the parents as it takes a softer approach, namely 'feeling food, agriculture and the environment using the five senses.' There is a lot to learn from this approach.

5. Homestay at the Ebara Farm to experience a pleasant family life of which agriculture is part.

Nuclear families are the mainstream in modern Japan, but the Ebaras is one of the few families where three generations live together. Even among farming families very few retain their young people as many of them emigrate to the city. Quite a few of the Japanese and international trainees who stay at Gabare Farm were impressed by the warm, family atmosphere and the way each member has a role to play. Mr. and Ms. Ebara say: ‘we do not hide anything here. We want those who stay here to see what it is like to live a life on the farm. We also wish to discuss with them how society should be organized, and where it should be heading.’

Their door is always open to the outside world, and Gabare Farm evolves as Mr. and Ms. Ebara consider the family and its symbiotic relationship with the land.
Kazuo Mitsui

Kazuo Mitsui is a farmer who practices Natural Farming with no tillage. It is agriculture in tune with the earth's prodigality.

Personal History:

Mr. Mitsui was born in 1951 to a farming family. As a rest from his own country he travelled extensively through India and Nepal. There he was taught by the people he met the joy of working the earth and the real taste of food. Gradually he realized that agriculture might be the way of life for him. In due course he decided to go back home and start farming. First, he tried the ordinal farming practice using pesticides and chemical fertilizers, but soon his body was unable to cope with their effects. He then shifted to Natural Farming methods using cow manure. He was producing vegetables for school meals at that time, but then he stopped using cow manure when he doubted the need for dependency on someone else for fertilizers. That led him to choose vegetable material (rice straw, etc.) and poultry manure from free-range chickens. At the same time he started to practise Natural Farming methods in accord with natural law, shifting to non-tillage farming. Six years ago he succeeded in applying this method to his entire field.

His output:
Products - 50 to 60 kinds of vegetables along with rice, and chickens for domestic use.
Scale – 0.25 ha laid out to paddy fields and 1.2 ha vegetable fields.
Clients - 40 individuals and 3 restaurants where Mitsui Farm Vegetables are served as brand products.

1. The ideas that encompass Natural Farming methods

What he calls as Natural Farming is a farming method that requires no tilling, no fertilizers, no pesticides, and no opposition to weeds and insects. One of the pioneers of Natural Farming methods in Japan is Mr. Yoshikazu Kawaguchi, and Mr. Mitsui learned a lot from him. The vegetables and rice grown by Natural Farming methods have genuine taste, untainted by additives for excessive sweetness and umami (i.e., the fifth taste sensation). When Natural Farming is practised for a long time, the soil of the land becomes fertile without tilling or applying fertilizers. With chopped weeds at a minimum around the plants, it attracts microbes and small animals to take up residence there that eventually enriches the soil.

Why no-tilling? That is because by digging soil the natural energy of the soil is weakened,
and the circulation between the soil and the air is cut out. Natural Farming methods, however, draw on the emergence of circulation simply by returning the weeds to their original state. Thus, Natural Farming does not require the importation of fertilizers from outside. The fermented weeds create the circulation and crops grow in this cycle. Under natural conditions land covered with weeds absorbs more solar energy than cultivated land, as energy is absorbed through the grass. When the soil is dug, however, the land is no longer able to take in the same quantity of solar energy by itself. This is why inputs from outside are required. Mr. Mitsui says that Natural Farming will eventually solve all the problems, as it is free from tilling and chemical usages that cause all the troubles. Thus the solution to human interference is to follow natural processes.

Weeds may be annoying at first, but they should not be completely eliminated. If they are cut constantly and left on the topsoil, floral changes to less aggressive weeds and reduction of weed population may occur. Weeds have a part in the natural environment, or in other words, they grow because they are necessary for the land. One can even see changes in the whole environment by observing the change of weeds. This observation becomes impossible if we till the land. Mr. Mitsui thinks it is important to arrange the conditions whereby farmers can receive messages from nature by perceiving fully nature's changes.

Obviously yields dropped dramatically from 600 kg per 1000m$^2$ to 30 kg when he began a regime of non-tillage farming. This amount was merely 5% of the previous year when he was applying green manure of Chinese milk vetch (Astragalus sinicus L.) and 20kg of crushed bone per 1000m$^2$. In the first year weeds grew rapidly as water was drained. He patiently cut the weeds and returned them to the soil again and again. A large amount of water was lost by the activities of moles as well. Yet he did not give up the no-tilling regime. Gradually water came to remain stable. As for moles he managed the problem by arranging ditches properly around the paddy. Now the yield has recovered to 300kg per 1000m$^2$. This is still half the amount compared to the past, but it is good enough for Mr. Mitsui, as Natural Farming methods save labour for tilling and the cost of fertilizer. As for moles, he says: 'I do not intend to get rid of them because they are also living on the farm. They produce manure and make paths for other animals. All these activities contribute to the expansion of animal diversity. If the numbers increase too much, that will be a problem, but it is better to have a moderate number of them than having none at all.' Mr. Mitsui has no enemies, or he does not define anything as an enemy.

2. The tasks in the Natural Farming method

Basically, Natural Farming does not require the use of machinery, as it is a no-tilling farming method. Using machinery incurs fuel costs, and fuel must be obtained from somewhere else. Green manure, such as the Chinese milk vetch, is not applied unless the
soil is terribly poor or bare. Even in this case machinery is not used for plowing-in and the green manure is simply put on the topsoil after it dies in June.

He tries his best to obtain everything from the farm. The life cycle of creatures there brings about a fairly rich soil environment for the growth of crops. He keeps his eye on the land so that it is always covered with rice straw or cut weeds. It is the best if crops grow through the piled rice straw and dried weeds. He carefully observes the farm and takes all necessary care. He says, 'The important thing is that people are close to the land.’ From his experience he is sure he can manage the scale of 2 hectares using this method of no machinery, no pesticides and no fertilizers.

Of course different people have different approaches depending on the situation even if they all adore Natural Farming. The ability to observe and perceive the needs of crops is essential for Natural Farmers, just as it is for those applying other agricultural methods. It is not that Natural Farmers have only to cut and lay out the weeds back in the topsoil. For example, under a certain condition some crops raised in lines grow better when we cut weeds and weed-mulch every other line, as the crops in the neighbouring lines can absorb energy from those taken care of. Eventually the whole field becomes fertile.

For specific crops he applies small amounts of rice bran and oilcake on the surface of the soil. Rice bran is not placed deep into the soil. The microorganisms and small animals can reach the essence of rice bran, which gradually soaks in the soil. It is believed that spinach never grows without grass/wood ash. However, Mr. Mitsui would never use composts, no matter if they were vegetative or not. A small amount of rice bran, and grass/wood ash are the only things used on occasions. Manure from the Mr. Mitsui family is mixed with leaves and returned to the field during wintertime. This is based on the idea of returning what was given from the soil to where it used to be, rather than applying manure as fertilizer.

3. Crops suitable for Natural Farming and the ones not suitable

Some crops are not suitable for the Natural Farming method, though not completely. For example, growth of burdock (Arctium lappa L.) is prevented by the holes dug by moles. This means that it does not grow well in the field with holes from crops of the previous years. Soybeans sometimes do not make fruit, as the plant body grows too large. Spinach needs grass/wood ash, as mentioned earlier. Other crops, root crops or leaf vegetables, grow with no problem. Natural Farming suits carrots and radish in particular.
family farming. Therefore he appreciates the experiences of living in Asia. He wishes to spread his knowledge of farming methods learned over many years to other people in that part of the world.

5. Why not try such an easy and breathtaking experience as his for yourselves?

“Natural Farming methods even make people feel warmer towards daily life because nothing is seen as an enemy. Natural Farming is recommended if you want to deepen your knowledge of the earth or even if you just want the real taste of vegetables.” Mr. Matsui's philosophy of farming is that his fields lead to peace.
Masaya Omori
Farm management and food processing with the lowest inputs, and charcoal making

Background

Born in 1942, Masaya Omori became a truck driver for the joint purchaser of organic agricultural products after graduating from Osaka City University. Unsure that this was what he wanted to continue doing, he quit his job in 1984 to begin self-sufficient farming. Since 1987 he has lived on farming, charcoal making and bread making with his six children at his current address. Not content just to farm, he has accepted trainees from Asian and African countries as well. He and his family have been pursuing a traditional Japanese organic farming style with no use of pesticides or machinery. He still continues this farming style in a mountain area with four of his children.

Farm size: crop field (30 ares), chickens (120), pigs (3), silky fowls (8), goats (2) and honeybees.
Facilities: a bread oven, a hard charcoal kiln, small hydroelectric facility and apparatus for fermentation of methane gas (for liquid fertilizer).
Products: Rice, soybeans, vegetables, pork, chicken, chicken eggs, charcoal.
Products for sale: Rice, vegetables, wild yeast bread, charcoal, pyroligneous acid, pork bacon, and honey.


The typical *teikai*-based organic farming movement in Japan is in a period of stagnation now. Those urban consumers who had supported the movement are not young any more. The younger generation is shifting to a new lifestyle. They prefer natural foods purchased from shops that sell organic food, or mail order services, because there they can avoid troublesome contact with other people. It allows them to buy anything, anywhere, whenever they wish.

However, the change in people’s attitude towards the consumption of food does not affect Mr. Omori, as he does not rely too much on the consumers who buy his products. In fact his lifestyle is very unique and totally different from other organic farmers.

At first he began farming in order to be self-sufficient. The only costs he incurs are for
basic medical treatment and transportation, and his cash income is less than 1 million yen per year (ca. 1/6 of average Japanese). This income comes mainly from selling wild yeast bread, charcoal and pyrogallous acid. The only food they need to buy is fish, but this does not cost him extra because fish can be obtained by bartering with vegetables, rice and bread. This is how the family minimizes their expenditure.

Some people criticize Mr. Omori’s lifestyle as being too extreme. They insist that he should earn and spend some more to enjoy life just as people do in urban areas. But for him an urban area is ‘the zoo where people trap themselves,’ to quote his words. He believes that the closer people are to the city, the further they are from real human life. He also believes that the current mass consumption in Japan is at the expense of exploitation in the developing world. Thus to take part in urban life means to be an accomplice in exploitation.

These ideas are impressed upon his six children. They have learned from their father how to enjoy their self-sufficient life in the de-populated rural area, free from the urban values of mass consumption and becoming rich.

2. The old wisdom of traditional farming methods and charcoal making in a mountain village.

Mr. Omori had no experience in agriculture and began organic farming in a mountain village when he was turning forty years of age. Since his method does not require pesticide use or affect nature, it will not cause trouble for our descendents. Having no experience of farming, it must have been tough for him, but it was advantageous in the sense that he was able to learn from the knowledge and skills of the traditional Japanese farmers. Before the Second World War, the Japanese farmers were all self-sufficient, including the production of fertilizers, and they hardly used pesticides. The rural village to which he moved had no youthful population at all, and the average age of the people was between eighty and ninety years. They knew all about the traditional farming method, and Mr. Omori was given a chance to learn from them directly.

The modernization of agriculture since 1960s has resulted in a drastic shift from traditional organic approach to use of chemical fertilizers and pesticides. Consequently over 99% of farmers believed that it was impossible to produce crops without chemical inputs, as they had got used to the new style. Though the old people had a method of
keeping production stable without these inputs, the method had been totally ignored and forgotten. The Omori family absorbed such skills and knowledge and brought them back to life.

Mr. Omori uses no machinery at all. This style has its origins in the traditional Japanese farming method. His family has been trying to develop the method day by day for twenty years. The Omori family is therefore the best place to learn the traditional Japanese self-sufficient farming and lifestyle. One of the local skills he learned from is white charcoal making. White charcoal is a harder and a more long lasting charcoal than the common black charcoal. You must add air little by little from the edge of the kiln at the later stage of charcoal making in order to increase the temperature inside to 1000°C. This is a really difficult skill to master. As soon as he moved into the village he learned from old people in the area in order to make use of abandoned secondary forests. He mastered this charcoal making method and it has now become an important source of his money income.

Charcoal scraps and pyroligneous acid from smoke are also crucial materials to support their organic farming. They sell excess pyroligneous acid to their customers and it becomes an additional source of income. This pyroligneous acid use is not only a legacy from the wisdom of the old, but is also a popular research topic nowadays in Japan. Mr. Omori actively learned this skill and uses it to establish his own style of organic farming. His oldest son, twenty-five-year-old Kenta, has learned charcoal making from his father since the age of fifteen years. Kenta usually involves himself with hunting and carpentry, but nowadays he makes white charcoal when winter comes. As Kenta has ten years’ experience many trainees learn charcoal making from him.


It is not only food that Omori’s family provides for themselves. They produce electricity generated by Pelton style waterpower, using a neighbouring mountain runoff. It produces more than 100 watts for domestic use such as for electric lamps. They also supply fuel for cooking from animal and human manure using an apparatus for fermentation of methane gas. Methane gas is fuel used mainly for cooking, as it’s low in calorific value. The apparatus to extract methane gas, rather than using it for energy purposes, was originally set up in order to make quick-acting liquid fertilizer.
As for cooking fuel, basically they use firewood in a furnace, which we rarely see in Japan nowadays. Their furnace is about thirty or forty years old, and was designed during the WWII when there was an absolute shortage of fuel. Thus it has great heat efficiency, taking full advantage of the potential of the firewood. After WWII there was a drastic shift in the source of fuel, and gas and petroleum replaced firewood and charcoal in households. The furnace did not attract much attention from researchers, and at the moment Mr. Omori’s is one of the highest heat efficiency in Japan.

It might appear that Mr. Omori and his family live quite a primeval life-style compared with others in Japan. But actually that is not true, and they live a fairly cultural one, perhaps because they have many visitors and supporters around them. That is probably why his family is popular among international trainees.

4. On accepting trainees for more than ten years.

The Omori family has accepted organic farming trainees from abroad for more than ten years in partnership with the Japanese grassroots exchange NGOs. They can learn the basic skills of organic farming, skills related to charcoal making, and food processing skills such as bacon, ham, smoked food and bread. They all involve work with the hands and none of these skills requires the use of machinery. Thus the trainees from the Third World regard the training at Mr. Omori’s as one of the most useful and impressive of all training programmes. The skills they learn are immediately applicable back in their home country. On leaving after a year’s training, a trainee from Papua New Guinea described the Omori family as follows: ‘Agriculture in Japan is very different from that of my own country. The Japanese one is all mechanized. But there is no machinery here at Mr. Omori’s. I like that.’

The characteristic of Mr. Omori’s family is that every member fulfils their role well, while living together and helping each other. The visitors, who might have been chasing riches in the market economy, may realize what a rich life really is by witnessing the way the Omori family live together under severe natural conditions. What we can learn from Mr. Omori’s is beyond farm productivity but the richness of living like a real human being.
Shigenori Hayashi

Speciality: Experience in seed gathering and frozen storage; food processing

Background.

After graduation in 1977 from a university Agricultural Department, Shigenori Hayashi became a farmer at home. He was sceptical about money-driven farming with heavy chemical use, and stopped after three years. He took training at an organic farm for a year and returned home to put it into practice. For the first four or five years he had hardly any crops because of pests, but soon the soil improved and the yields began to rise. He married in 1984, and extended his self-sufficiency as his wife was involved with food processing. They now have 60 teikei customers including three restaurants, and deliver vegetable sets to their homes.

Mr. Hayashi is currently the director of the seed and seedling division of the Japan Organic Agriculture Association (JOAA), the chairperson of the steering committee for the Seed and Seedling Network and a board member of the Japan Agricultural Standard (JAS) Organic Certification Program.

Products: 80 kinds of vegetables, soybeans, wheat, processed food such as pickles and jam, and chicken eggs
Farm Size: vegetable field (160 ares), fruit field (20 ares) and 150 chickens
Trainees: 2 to 3 trainees all the time

What can be learned from the Hayashi Farm?

1. Know-how for seed gathering and frozen storage.

Most of the seeds in the market nowadays are F1 hybrids so that home seed-raising is impossible. Farmers cannot be independent from seed dealers and they exercise considerable affect on the fate of farmers. Although current seeds require the use of pesticides and chemical fertilizers, in fact there are suitable varieties of seeds for organic farming. They are the native or local varieties from the days when pesticides were not used. They match the climate of an area very well. Hayashi values ancestral seeds and is doing his utmost to encourage self seed-raising among organic farmers, by
exchanging seeds and seedlings every year.

A grape grower Yasushi Oinoue once said: ‘no technique is better than species’. This means that taking time to grow suitable species for the area is more important than the growing techniques. Among more than 150 cultivars of 70 crop species Hayashi grows, he succeeds in self seed-raising 50 cultivars. The self seed-raising depends on the selection of a mother plant. Hayashi first chooses his own preferred type, such as those that are disease-resistant, with good taste, high yields, good color or good shape, and then he has to keep selecting those with such qualities over generations.

Sometimes crops lose their good taste when they are grown a distant away. That is because crops has adapted to a local area. In a sense farmers are supposed to gather seeds for their own farm by themselves. They have to keep the local seeds that pass, unlike F1, the features of the mother plant directly to the offspring.

There are two main ways to gather seeds/seedlings: 1) Vegetative propagation where the mother plant itself is a seed, or propagation by suckers and tillers; and 2) Seminal propagation in which seeds are made by fertilization.

The first one includes tuber crops such as taro, potato and sweet potato, some leeks, ginger, curcuma (turmeric), udo, Japanese butterbur, shallot and garlic. Though nutrient propagation is easier to handle than seminal propagation, there are several important procedures to be observed in harvesting, preserving and screening good materials.

Most crops not listed above belong to the second group. A lot of seeds in the market are F1 as mentioned earlier, whereas F5 or F6 begin to show stable characteristics after being raised for several generations. It is important to select the correct ones so that they grow to have favourable features. If everything works out well the farmer can have his favorite and most suitable species for his farm. Seminal propagation also requires certain procedures for each family of crops. For example the family Brassicaceae is divided into the genera Brassica, Raphanus, Wasabia, etc., and there cannot be hybridization outside each genus. Brassica has complicated features, as some can be hybridized and others cannot within the same genus depending on the number and distribution of chromosomes. B. oleracea (cabbage, broccoli, cauliflower and Brussels sprouts) does not hybridize with B. campestris or B. rapa (komatsuna, qing-geng-cai, mizuna and Chinese cabbage and radish), and B. juncea does not hybridize with other
Brassica. For families such as Solanaceae, Leguminosae and Cucurbitaceae also have specific characteristics of their own.

It is troublesome to grow these seeds every year, as it could lead to natural hybridization. Thus Hayashi applies frozen storage. The fridge does not have to be a special one; an ordinary one will be enough. Frozen storage allows seeds to be kept for more than 20 years without decreasing the germination rate. Hayashi stores large numbers of good seeds in the year when the climate is fine. Seeds are stored at minus 18 degrees Celsius. First, seeds must be dried well and when it is sunny put in a bottle with some desiccant. The covered and sealed bottle is then put in the freezer. You have to be very careful when you take the bottle out. It must be moved to a refrigerator and kept there for two or three hours, and then taken outside and left for two or three more hours before opening. If you open the bottle immediately after taking it out of the freezer, the seeds absorb moisture in the air due to temperature difference, and they can never be kept frozen again. When you take seeds out, seal and cover the bottle with the remainder and put it in the freezer again.

In general, native varieties might be a little too strong for those who have got used to standard mixed species with no smell or taste, because they retain the real taste of the food. Yet some people do prefer the unchanged classic taste. Above all, it is a pleasure to make varieties that one prefers without depending on the seed and seedling companies.

2. Growing vegetables using vegetable compost.

Hayashi grows 80 kinds of crops per year including grains. He uses vegetable compost for the soil. The farm keeps 150 chickens and cleans the poultry house twice or three times a year to collect manure. That is the only animal material Hayashi uses. Vegetable materials make up 95% of the compost, as animal ones make vegetables taste bitter and are more likely to cause pest and plague outbreak.

Though actual farming techniques for each crop have to be learned by practice in the field, there is one thing that is applicable to any crop, the ideal color. Too much nitrogen makes vegetables extraordinarily green, which is as unfavorable as those red-tinged because of the lack of nitrogen. A light color is the best.
In addition to residues of crops such as stems, Hayashi uses rice bran and chopped branches as the materials for fertilizer. They are piled and left for about six months for thorough fermentation. Mix it into the soil before planting. Hayashi uses the Effective Microorganisms (EM) Bokashi as additional fertilizer. It is made from 30kg of rice bran, 17.5kg of fishmeal, 7.5kg of oil meal and appropriate amounts of effective microorganisms.

3. The relationship with customers.

Hayashi does not clean vegetables when packing. Hayashi chooses 8 to 14 kinds of crops at random depending on the season and put them in a container. Processed beans and eggs, and pickles are added by the consumer orders.

“Our relationship with customers is not businesslike, but we understand each other very well. I always hope that customers do not treat our vegetables just as goods. When I have delivered and put a basket of my vegetables at the entrance hall, I would say ‘please cook them well because we grew them with utmost care.’ Customers would say ‘thank you for the vegetables on which I live.’ When I had just started the delivery service customers might have consumed worm-eaten vegetables simply for its safety. Nowadays they say our vegetables taste very different from those in the market, so praising their hearty taste. We are encouraged by this and feel like making more effort to make more tasty vegetables.”

Hayashi circulates a newsletter called ‘Green Message’ to customers once a month with his vegetables. He discusses with his farm members and writes on the current conditions of his farmland, or how to cook his vegetables and what he usually thinks about in his daily life. He invites customers to his home twice a year in spring and autumn for exchange of ideas. Some kids get muddy on the farm when they play and some feed chicks again and again. Some couples pick up Japanese butterbur flowerbuds, horsetail sporophytes, walnuts, gingko-nuts and chestnuts in the fun atmosphere of being a kid again. They enjoy cooking and chatting together and talk over different topics from recipes for cooking vegetables to environmental issues.

4. Confucian Shindo Fuji (one cannot live away from the soil). Eating crops while in season as a philosophy of life.
The Hayashi family is trying its best to be self-sufficient in food. They plant fruit trees and tea trees around the farm and garden. Ms. Hayashi has studied food processing at a junior college and she makes miso paste, soy and other sauces, or cans of bamboo shoot and jams. Eating vegetables in season means eating fresh tomatoes, cucumbers and watermelons in the summer season, which cools down the body temperature. Similarly, by eating cooked root crops and green leaves in winter, the body will be warmed up. Nature is highly effective.

There is a Confucian word ‘Shindo Fuji’. This means that the climate in an area is closely related to the bodies of those who live there. It also means that it is the best for health to eat the crops grown in the place where one lives. Thus it is Hayashi’s policy to deliver his vegetables only within an area that he can manage by himself.

5. Accepting international trainees.

As a director of the JOAA and living close to the Narita Airport, Hayashi has accepted international visitors quite often. As for Hayashi’s experience abroad, he has been to Europe for two weeks, but never to Asian nations. There have been roughly 25 Japanese trainees of whom 70% became farmers later on. Since Hayashi would like to promote organic farming so that it will be more widely accepted, he always welcome trainees, especially from abroad, as long as the language barrier is sorted out. In Hayashi Farm a 26.5 square meter two-storey building will be completed in March 2005 that will offer a place to stay and hold lectures.

6. A message for Asian farmers.

“I want you to have the experience of growing vegetables and gathering seeds with us, and realizing the richness of this traditional yet up-to-date, self-sufficient life-style. I want you to be proud of farming in your own homeland, because farming is the original life-style of people.”
Shinji Hashimoto

A Sustainable Agriculture (SA) farmer promoting the Alternative Marketing Program (AMP), a board member of the International Federation of Organic Agriculture Movement (IFOAM) Asia Regional Group, a secretary in charge of international affairs at the Japan Organic Agriculture Association (JOAA) and the deputy director of the NPO Hyogo Prefectural Organic Agriculture Association, which is a Japan Agricultural Standards (JAS) organic certifying agency.

Background.

Born in 1961, Shinji Hashimoto lived in Brazil in his high school years, and studied the history of Indian philosophy at the International Christian University (ICU) in Tokyo. In particular he studied the Chipko Movement led by the Gandhian activist and philosopher Mr. Sunderlal Bahuguna, which is related to the Sarvodaya Movement. After graduation he worked for the Nada-Kobe Seikyo (today's Coop Kobe), a pioneering consumers’ cooperative in Japan established in 1921. There he was attracted by a group of organic farmers that he was in charge of product distribution, and began organic farming himself in Ichijima, Hyogo Prefecture.

1. Introduction.

Mr. Hashimoto himself is a farmer, and he has practised organic farming for more than 15 years. He never uses pesticides or chemical fertilizers. Instead he combines the use of cow manure, *Bokashi* compost, the Effective Microorganisms (EM), and liquid fertilizers made by an apparatus for generating biogas. However, it is not his skills in organic farming that we are going to introduce here. It is the Alternative Marketing Program (AMP) that he promotes, and his extensive experience in the marketing of organic agricultural products that we are interested in.

2. What is the Alternative Marketing Program (AMP)?

Here is a quotation of Mr. Hashimoto’s that explains the AMP:

‘Organic farming, and agriculture based on the idea of the preservation of the environment, is gradually spreading in Asian nations as a result of criticisms of the Green Revolution. People are taking a hard look at modern agricultural methods that
use vast amounts of chemical fertilizers and pesticides. However, it is fairly difficult for many Asian nations to consume organic products within a country because of inadequate distribution systems, lack of information on environmentally friendly agriculture and the safety of food, and other economic problems. In these countries more and more organic products are exported overseas, and the organic industry is becoming dependent on exports. Japan is a major importing country of the products from Asia. The AMP started in the year 2000 and has been promoted since then. It tries to unite the leaders of Asian organic farming associations with Japanese organic farmers, distributors, researchers and consumers. By studying each other’s predicament, they try to work out a common alternative strategy and model, different from the liberalization advocated by the World Trade Organization (WTO).

Mr. Hashimoto describes his motives in starting the AMP as follows:
‘It might be difficult for Asian nations to adopt immediately the distribution systems that have long supported the organic farming movement in Japan. But an industry cannot be sustainable if it seeks markets abroad. The basic principle of organic farming is local production for local consumption. Without attaining this goal the sustainability of the local area cannot be guaranteed. Of course the conditions in other Asian nations may be very different. For example Japan has a far higher number of middle class people in the population. Yet real, sustainable production requires finding supporters who are willing to encourage farmers and domestic products. However bad the conditions may be, it is essential to try and unite farmers and consumers in the local area.’

From this standpoint he has invited leaders of organic farming associations in Asian countries every year through IFOAM Asia. What they learn in Japan will be of help in their own country, particularly with regard to the distribution of organic products. Many organizations within his network have joined and are prepared to accept trainees, such as the JOAA, consumer groups, organic product distributors, and retail shops.

Having studied abroad for a long time when he was a high school and college student, Mr. Hashimoto has a good command of the English language. He has worked for the Nada-Kobe Seikyo, a large distributor of organic products too. His two-week training program has improved with the feedback from participants. In the year 2002, the program was held in the Tokyo and Hyogo areas, and participants from Hong Kong, India, Nepal and the Philippines visited seven organic farms, three consumer groups,
two farmer’s markets, two agriculture associations, two large distributors and a retail shop. They also attended two symposiums.

For those participants who wish to establish a market for organic products, AMP is a great experience. Some of them have created and started their own activities such as cooperative purchasing and peddling products based on the knowledge and experience they gained in the program. The participants used to be recruited through IFOAM, but Mr. Hashimoto is now thinking about targeting a wider range of farmers and associations worldwide. He would like to share with them some valuable experiences in the sale of Japanese organic products in order to accomplish sustainable organic farming on a global scale, which is based on local production for local consumption.

3. Experience in certifying organic agricultural products.

Recently, certification of organic products has become a controversial topic in many countries due to the increased consumption of organic produce. The NPO Hyogo Prefectural Organic Agriculture Association, in which Mr. Hashimoto serves as a board member, also certifies organic produce. Among 70 or so similar organizations of its kind, due to reasonable cost this one attracts applications even from quite distant places. Mr. Hashimoto has a profound knowledge of certification since he has dealt with it for a long time. He is a really knowledgeable and experienced person on marketing organic products in general, including teikei and other distribution systems.

4. Long experience in accepting international trainees.

Mr. Hashimoto has accepted farm trainees from abroad for a long time with the arrangements of an NGO group called the Peace, Health and Human Development (PHD) Association based in Kobe. The PHD is a grassroots organization that has supported people in the developing world for 20 years, not by sending commodities or donations, but by inviting trainees to Japan. The organization has prepared various programs on agriculture, food processing and local development, so that trainees can assist such development within their own countries.

Mr. Hashimoto’s role is to teach trainees on arrival the current agricultural situation in Japan and basic attitudes to learning on a Japanese farm. There is a small house for trainees in his farm as he has visitors very often. His instruction is essential for the
trainees who will soon be assigned to learn on another Japanese farm. They also learn practical skills on his farm, such as how to make Bokashi compost or how to cope with insects without pesticides. The advantage is that his instructions are given in English. Thus the trainees can ask Mr. Hashimoto many questions, including the ones raised while working elsewhere.

5. A message from Mr. Hashimoto:
‘Japanese organic farmers were submissive to consumers at first. Being rural farmers made them acquiescent and they were not opposed to what urban consumers said. One reason was that they were afraid that consumers might stop buying their products. When I joined the organic farming group here, it was even harder for the young to speak out, or have opinions, as the group had a strict age hierarchy too. I used to sit in the corner of the room in silence when I attended the meeting. Nowadays young people can speak out more freely. Thanks to this experience I believe I might be on the same wavelength as Asian farmers. I would like to work together with skilled Asian farmers who toil under different conditions, for a long time to come. Though teikei movements in Japan face difficulties at the moment as society changes, I want Asian farmers to learn how to develop organic farming and to take advantage of AMP while expanding the market in their own countries. We can make the world better only if each one of us stays on firm ground. Let us stick at it together.’
Shinpei Murakami
A young leader of Natural Farming in Japan with twelve years of agricultural experience in the tropics

1. Background.

He was born in 1959, in Fukushima Prefecture, as the first son of a Christian family of chicken farmers. As his parents were both suffering from heart and kidney problems due to pesticides and chemicals used in chicken farming, when he was eleven years old, Shinpei insisted on altering their farming style to organic farming without pesticides, so that they could grow food for personal consumption and sell the surplus. Since that time his youth was spent with the weeding and farming. He entered a private Christian agricultural high school called Aino (love farming) High School. Though he did not like farming before that, he came to realize that agriculture is a fundamental part of life and can be creative and fun. He took over organic farming at home after graduation. He studied English for a year when he was twenty-one years old, and hoping that he would be able to live anywhere in the world, spent one year at Samanwaya Ashram in Bihar India, and Dhaka Bangladesh. His experience there greatly influenced his views on agriculture and international cooperation. He spent about six years in Bangladesh promoting Natural Farming until he returned home to be a Japanese farmer in 1991. In 1995 he was invited to Thailand as a manager of the Japan International Volunteer Center - JVC and spent six years founding a highly reputed, model natural farm. He returned to Japan in 2002, and now lives a self-sufficient life based on Natural Farming, in a rural village in Fukushima. He is searching for a way of life that does not deprive nature or exploit people in the Third World.

2. The concept of Natural Farming and Mr. Murakami’s personality.

Murakami says: ‘Natural Farming is aiming at high productivity and stability in agroecosystem, as in natural forest ecosystem, and proper farm yields while preserving the environment. By studying forest ecology, we can apply its principle, structure and mechanism to agricultural techniques. Natural Farming tries to realize in a farm field the features of natural forests, namely species diversity, biophysical cycling and multi-layer structure. It is not just a technical theory, but it is also a philosophy of co-existence.’
With his policy firmly in his mind he is never upset by problems such as pests or the
decrease in yields. He would first observe what is happening in the farm at large and
find out what causes the problems. He then copes with problems based upon the three
points - species diversity, biophysical cycling and multi-layer structure. You will be
impressed by the simple yet convincing way he talks if you meet him. The longer you
associate with him the more reliable he will become. With his long experience in the
tropics, he knows much about the character and values of the people there. He can
suggest the most suitable agricultural method to meet each person’s needs.

3. The textbook about his experience in India and Bangladesh.

Mr. Murakami has looked at India and Bangladesh from a farming viewpoint for a long
time. He says that agriculture causes desertification in the tropics. Once surrounded by
thick forest, Buddh-Gaya now has no trees in the mountains and no water in the rivers.
Cultivation beyond the limit of ecosystem resilience has turned the land sterile. Through
his experience in India and Bangladesh he began to realize that the forest must be the
model for the natural cycle.

The following is the contents of his book on the philosophy and the practical skills of
Natural Farming, written simply in order to promote Natural Farming in Bangladesh.

Lessons from Nature - A Guide to Ecological Agriculture in the Tropics

Part 1 Background
   Chapter-1 Nature and Agriculture
      1.1 The Ecosystem of the Natural Forest
      1.2 Differences between Agriculture and the Natural Forest
      1.3 Water
      1.4 Characteristics of the Tropical Ecosystem
   Chapter-2 Soil
      2.1 What is Soil?
      2.2 The Functions and Qualities of the Soil
   Chapter-3 Problems with Chemical Agriculture
      3.1 Ecological Problems
      3.2 Economic Problems
      3.3 Social Problems
Chapter-4 Principles of Ecological Agriculture
4.1 Diversity
4.2 Living Soil
4.3 Recycling
4.4 Multi-Storey Structure

Part 2 Practical Methods
Chapter-5 Soil Fertilization and Conservation
5.1 The Principles of Soil Fertilization and Conservation
5.2 Mulch with Less Tillage
5.3 Green Manure
5.4 Compost
5.5 Planting Trees and Grasses along the Boundary

Chapter-6 The Cropping System
6.1 The Problems with the Present Cropping System
6.2 An Alternative Cropping System
6.3 Diverse Cropping
6.4 Crop Rotation
6.5 Mixed Cropping

Chapter-7 Pest Management
7.1 What is the Pest and What is the Problem?
7.2 The Vicious Cycle of Chemical Pest Control
7.3 Natural Pest Management
7.4 Weeds

Chapter-8 Self Seed Production
8.1 Problems with HYV, Hybrid (F1) and Purchased Seeds
8.2 Advantages of Self-Seed Production
8.3 The Process of Self-Seed Production

After completing this book he returned to Japan and promoted Natural Farming at his home.

4. The project for the foundation of Nongjok Natural Farming Center, Thailand.

In 1995 he was again invited by the JVC to join the project in the tropics. He was working as a project advisor for a while, arranging, assessing and launching projects in
several countries. He became a manager dealing with Thai cases at the end of 1996. His resolution at that time was to work so that Thai farmers would approve of Natural Farming and change their agricultural techniques and life styles into sustainable ones by studying nature. The project was launched with this objective in mind. There were to be three goals. First, to make a model farm by Natural Farming, secondly, to provide agricultural training programs, and thirdly, to make farms economically profitable. They achieved these goals within five years and Mr. Murakami was supposed to wind up the project and go back to Japan.

So far Nongjok Natural Farming Center is the outcome of his Natural Farming practice in the tropics. Its basic concept is to search for species diversity, biophysical cycling and multi-layer structure, which are exactly the same as the features of natural forests. In particular, the fundamental structure of the farm aims to keep water from rainfall on the farmland, and absorb and use as much sunlight as possible. For this reason the surface soil of the farm is covered with grass mulch in order to increase the soil’s capacity for retaining water. The excess water goes through a waterway and is stored in a reservoir. The farm looks like a forest since trees and perennial plants, which can absorb sunlight throughout the year, surround it.

Basically, Mr. Murakami applies a natural method when coping with so-called pests. The method is to regain a natural balance, or to increase the diversity of creatures on the farm.

On a regular basis he grows more than ten kinds of seasonal vegetables in rotation. He plants perennial grasses such as lemon grass and many different fruit trees around the vegetable farm and paddy field. He prevents an increased number of pests by growing different kinds of trees and herbs. The logic in this is that it provides home for the natural enemies.

In addition to the recycling of organic matter such as manure and grass mulch, he actively applies the combination of different farm animals and plants so that they create for themselves a natural cycle without involving humans. For example, ducks do not eat rice, but they eat weeds and insects. Their manure can become a fertilizer for rice. It took four people ten days to weed eighty ares of paddy field in the first year when there were no ducks. In the second year, ducks have eaten almost all the weeds. Thanks to ducks Mr. Murakami did not have to worry about labor for weeding or managing pests.
What was even better was that the crops grew without adding fertilizers. This proves that it is not his technique to remove what appears to be a problem but to use it to create a natural cycle.

5. The future of Mr. Murakami’s farm.

The project at Nongjok Natural Farming Center was successfully on track. When it was nearly completed Mr. Murakami withdrew from the JVC due to a fundamental disagreement regarding project planning by NGOs. One of the most serious disagreements was how the projects were to be assessed. The assessment is usually result-based, and a project of several years’ span, made and operated by the group as a whole, is assessed according to how successfully their planned goals were achieved. For him the most attractive thing was to learn something from new experiences and new people. Working in order to achieve results within, say, a three-year period was no longer attractive for him. He was also conscious of the self-righteousness of people involved with NGO activities, as they never accepted criticisms from outside. He was feeling doubtful about uncritically forcing NGO beliefs upon local people.

Currently Mr. Murakami practices Natural Farming on his new farm in Fukushima, Japan. At the same time he gives lectures on his Natural Farming philosophy and skills to whosoever is interested. He is never satisfied with the experience and knowledge he already has, nor simply giving his ideas to the trainees. He is always trying to make full use of what he learns from trainees while brushing up his own knowledge. His sincere attitude convinces us that he must be a future leader of Natural Farming in Japan.
Takeo Takahashi

Natural poultry and organic vegetables using charcoal and pyroligneous acid

Background

Born on a poultry farm in 1951, Takeo Takahashi was sceptical about the future of modern poultry farming methods using chemicals. He established his own natural poultry farming method in a trial and error style, incurring heavy debt (which he paid off later). Since 1995 he has traveled widely in countries such as India, Thailand, Indonesia and Brazil with members of the International Charcoal Cooperative Association (ICCA). He has taught his farming method, namely, non-chemical livestock and vegetable farming using charcoal and pyroligneous acid, to as many people as possible. Currently he is the chief of the Life-Farming Association (Seimei Noho Kenkyukai). Over a period of twenty years he has single-handedly built up a customer base of 120 households to whom he sends his eggs and vegetables. The members include some of those who have a medical condition caused by chemicals and some with atopic dermatitis. They all sympathize with his farming philosophy and his values in life, not to mention the taste of his vegetables.

The profile of Mr. Takahashi

One of the main characteristics of Mr. Takahashi’s farming method is to make use of lots of different obtainable natural materials such as microorganisms, enzyme, mineral, catalytic substance etc. Of course he tries to be self-sufficient in whatever he can make by himself, but he does not hesitate to purchase products whenever it is necessary. He examines the potential of new natural materials on his farm to improve his farming method. He applies many different ideas and methods, such as Steiner’s Biodynamic Agriculture, the Atomic Transformation Theory of Russia, the Nutrition Cycle Theory of Japan, and the Undulatory Theory. Then he adopts the best combinations.

When he gives instruction abroad, however, he carefully chooses the most suitable farming method for the local people. What they need are easily obtainable materials from their own land and manageable agricultural techniques, otherwise they cannot carry on the project once Mr. Takahashi has left. He always shows consideration for the people who are actually involved with farming. His knowledge of various organic
materials and agricultural techniques, backed by experience, is very useful when he teaches farmers abroad.

There are two major materials that he often employs. They are charcoal and pyroligneous acid. Both are obtainable almost anywhere in the world. They are relatively easy to handle, can be applied under a wide range of conditions, and above all they are definitely effective.

The current situation of charcoal and pyroligneous acid use in vegetable and livestock farming in Japan

For twenty years the amount of charcoal and pyroligneous acid used for agricultural purposes has been increasing, as charcoal was designated by the cabinet ordinance (No. 354; year 1986) as a material for soil improvement. Currently, sixty thousand metric tons (60,000t) of charcoal is traded in the Japanese market each year, mainly for the purpose of improving soil conditions, so is several thousand metric tons of pyroligneous acid. Since a huge amount of charcoal used is said to be missing from the statistics (for example the amount dealt with by individual trading or domestic production and consumption), the actual amount must be far more than the given figure. In fact these materials have been, and still are, used universally as organic agricultural materials throughout Japan. In addition, pyroligneous acid will be registered as an agricultural chemical in the year 2005 after a verification test by an official institute. The number of users of charcoal and pyroligneous acid should count well over several hundred thousand people. Nearly every month agricultural magazines provide examples of how to use pyroligneous acid. Its usage is reported from different parts of Japan. Practitioners also actively exchange their information.

Mr. Takahashi is a leading expert among those practitioners. He has long directed his attention to the benefits of charcoal and pyroligneous acid. He has found its essential properties and thereby established a wide range for its usage. He placed a charcoal kiln besides his house ten years ago and keeps trying new materials to see what effects they may have when they are turned into charcoal.

The application of charcoal and pyroligneous acid to vegetable and livestock farming

- Use of charcoal for vegetable farming: improving soil conditions
Mr. Takahashi says that success in farming depends entirely on the soil condition. Most
diseases emerging above the surface come from diseases of the roots. The best way to
increase the yields is to figure out what kind of soil is most appropriate for the root
system. Subsequently a way must be found to achieve the best soil conditions, given the
original quality of the soil. Once the best soil condition is achieved, the soil requires less
fertilizer each year. Applying too much fertilizer causes half the cases of widespread
disease. Also, it is important to apply a balanced mixture of organic fertilizers and
mineral fertilizers. Charcoal can help to balance minerals and improve the physical
characteristics of the soil. Ideally Mr. Takahashi tries to achieve soil conditions where a
stable yield can be expected without applying fertilizers. When the soil condition allows
crops to grow naturally with the natural cycle, the vegetables are supposed to have the
best taste. Less fertilizer use will cut down the cost too. The base fertilizer used in his
farm and paddy field is Bokashi compost, which contains chicken manure. He adds
charcoal to this compost too, for it helps fermentation and shortens the processing
period by up to one half compared to the normal period. As for his chickens, chicken
manure already contains charcoal because charcoal is put in the fodder. According to Mr.
Takahashi, the most effective compost can be made in this way. He once taught a group
of people from the West Kalimantan in Indonesia. They had practised and promoted
poultry and vegetable farming with charcoal use for ten years. They were confident
about the effect of this kind of compost made of chicken manure and charcoal.

- Pyroligneous acid use for vegetable farming

Pyroligneous acid is a kind of liquid that can be abstracted when the smoke from
charcoal making is cooled down. It takes a half-year for maturation before the
abstracted pyroligneous acid can be used. It is becoming popular as an alternative
natural material that might replace pesticides. It has a smoky smell and the smell is
supposed to drive off harmful intruders as it is just like that of fire to small animals. Mr.
Takahashi says that it is not really effective to spray pyroligneous acid after the crops
actually get diseased, as it does not kill insect pests. Insects are bound to come back
after a while when the smell has gone. Then how can pyroligneous acid be an
alternative for pesticides? It has something to do with the nutrients of the acid. The acid
consists of 200 to 300 kinds of nutrients including acetic acid. When diluted 100 fold
and sprayed on the leaves of the crops, the leaves become thicker and harder. That is
because pyroligneous acid helps leaf metabolism and the creation of new leaf
membrane. Thick leaves improve the photosynthesis of plants, and hard leaves prevent
diseases or damage caused by pests. As the potential of hydrogen (pH) of pyroligneous acid is around three (strongly acidic), plants will die if an undiluted solution of it is sprayed on. By spraying diluted liquid of 300 to 1000 fold roughly every two weeks in place of regular watering, we can make healthy and disease-resistant plants. The appendix shows examples of how to use pyroligneous acid for different crops.

- Charcoal use for livestock breeding

It has long been known worldwide that feeding charcoal to farm animals is effective for such symptoms as abdominal pains and diarrhea. It is the same for animals such as chickens, pigs, cows, sheep and goats.

In the case of Indonesia mentioned earlier, Mr. Takahashi taught farmers to make fertilizers by mixing charcoal with chicken food. Besides they were told to put charcoal on the floor of a henrun to a thickness of 20 centimeters. Then they had to replace the old charcoal with fresh stock every six months, piling the old ones with other organic matter and grass. This style of poultry farming protects chickens from disease, and in fact any infectious diseases spread outside do not infect the chickens in their poultry house. Mr. Takahashi believes that it is because lots of bacteria and microorganisms live in charcoal. These might prevent new types of bacteria or virus from growing.

In addition to the reduction of diseases, there are several other advantages in feeding charcoal to farm animals. First, it removes the stench of livestock manure. Charcoal crapes out the waste matter in animal intestines that causes the stench, and absorbs it as well. The surface area inside charcoal is up to 300 square meters per gram, and thus it absorbs large amounts of malodorous substance. Secondly, it improves the quality of meat and eggs. This is because the gastrointestinal system becomes brisk, generating better absorption of nutrients and better metabolism. Minerals from wood make up 3% by weight of charcoal, in which microelements are well-balanced for the good health of animals. However, the ratio of charcoal mixed into feed must be kept under 3% of the total amount at maximum. If too much is applied, charcoal will start absorbing water. Then the manure will become hard, which can damage the intestinal wall, just as human beings become constipated. The proper amount of charcoal will reduce the rate of death from disease, improve the quality of meat and eggs, and raise the quality and price of the final products. Thus charcoal use certainly has positive effects in terms of income as well.
- Pyroligneous acid use for livestock farming

Mr. Takahashi also uses pyroligneous acid for poultry. When a chicken is fed 1 cc of pyroligneous acid per 1 kg of the body weight (for example 2 cc for a chicken of 2 kg), the chicken will have a higher metabolism and its body temperature also rises. We must be careful with the amount to give, though, because feeding too much will cause dehydration. If the proper amount is given, pyroligneous acid can be a good supplement when the immune system of the chicken is lower, for example when new feathers grow. In the Indonesian example mentioned earlier, in addition to water, they place a solution of pyroligneous acid diluted up to 100 fold in a poultry house while the chicks are still small, so that chicks can take it whenever they want. As a result, there was a drastic reduction in the rate at which diseases were caught. Pyroligneous acid is effective not only for chickens but also for pigs. When they wiped the bodies of pigs with a solution of pyroligneous acid, no skin diseases were observed at all among them. Moreover, it was good for their mental state too, for pyroligneous acid drives off flies and mosquitoes.

Mr. Takahashi has a more aggressive strategy to improve the immune systems of chickens by pyroligneous acid use. He lets chicks infected by coccidiosis, one of the major diseases of chickens, recover from disease using his own method. Eventually chicks will have a higher resistance to disease. Pyroligneous acid plays a key role in this process. Mr. Takahashi is the only one in Japan who uses pyroligneous acid in such a way.

Family farming

Mr. Takahashi is currently practising organic poultry and organic farming with his wife and two children in their twenties. His children have taken over his farming methods and way of life and are eager to promote his style throughout Japan and abroad. His oldest son has studied English in Australia so that he can better support his father. His family seems to have a promising future.
Yoshihide Kanno

A farmer/facilitator promoting Sustainable Agriculture (SA) and circulation of organic matter

Background

Born in 1949, Mr. Kanno took part in the Narita Struggle when he was a college student. He supported the farmers who were opposed to the government plan of constructing the New Tokyo International Airport at Narita and thereby taking their farmland away. In due course Mr. Kanno was placed on the police blacklist. He returned to his hometown when he was 26 years of age and began farming. Then, at the age of 38, he was asked by the mayor to be involved as chairperson with a long-term city plan. He proposed the Rainbow Plan. Currently he still engages in farming on his 2 hectares of paddy field and 15 ares of vegetable farm. He raises 800 chickens by organic methods. He also represents the Asian Farmers’ Exchange Center (AFEC), whose basic principle is to live together with Asian farmers.

1. Introduction

Mr. Kanno has practised organic farming for more than 20 years, and he has established a method for raising 800 chickens without using chemicals. However, it is not his farming method but his farming philosophy and the Rainbow Plan that we are going to introduce here.

The Rainbow Plan is an embodiment of his farming philosophy in his hometown, and it is, to quote his words, ‘a cooperative city plan for our future.’ The plan is based on the agreement of the citizens and the municipal administration on an equal footing. Essentially what this plan promotes is the use of garbage as a resource. Its aim is to tie together farmers and households, or farms and kitchens, by offering opportunities for different people to meet each other. Thus the first part, namely utilization of garbage as fertilizer, is not the most important part of the program. Garbage is merely a resource. The main emphasis of the plan is people living in the area, their life, the environment they live in, and the ties between people and their hometown. The most important thing is to find out how the people and their hometown can retain health, richness and integrity for the future.

Trash disposal is one of the big issues in Japan at the moment, and several strategies have been taken to cope with the problem. For example, local governments particularly the ones in urban areas, are promoting trash separation and recycling in order to control the amount of trash from each household. Many municipalities even lend a composting container free
to each household, so that garbage will be disposed of there. This costs less because garbage will emit dioxin unless it is incinerated in an advanced waste incinerator. The Rainbow Plan was a great success for all since it has transformed such a troublesome problem such as waste into a precious resource. The project also helped activate the rural area. Mr. Kanno was the planner of the project and he has always emphasized the importance of the natural cycle and the soil, which he believes is the origin of everything.

2. The Rainbow Plan in Nagai City

What is the Rainbow Plan that Mr. Kanno has been promoting? It was put into practice in Nagai City, which has roughly 9000 households among which 5000 are found in urban areas and 4000 in rural areas. The total population is about 32000 persons. The 5000 urban households all practise trash separation, and garbage is taken to the compost center where it is mixed with chaff and animal manure and turned into fertilizer. The fertilizers are retailed to farmers on request. Farmers grow crops according to the standard set by the Rainbow Plan. The crops are sold and consumed at schools and households, which then produce garbage to be recycled. With the help of agriculture this cycle around garbage is repeated within the local community. This cycling system brings about peace, a rich natural environment and healthy food for the people living in the area.

In Japan at the present time food materials for rural markets tend to be provisioned or redirected by urban markets under the centralized distribution system that sustains mass consumption of large cities. Thus the local products are rarely consumed within the area. This is the case for agricultural products in general, not to mention organic products. For these rural areas, farmland merely becomes a symbol of the countryside. The Rainbow Plan tries to attain a higher self-sufficient rate and a truly sustainable life in the area, by means of local production and local consumption.

The self-sufficient rate of food in Japan is already below 30% by calorific value basis. It is worse locally at around 10% in most localities. Self-sufficiency within the local area may almost sound like a dream. However, it is a serious enough task to want to achieve a sustainable environment. The whole community should tackle the task if we really mean to realize sustainability. SA should not be simply for the self-satisfaction of farmers. It should be the recycling system of an area that involves the help of the whole community. This first small step is very important though the current situation is a long way from Mr. Kanno’s goal. In fact, before the project started garbage was not collected at all in Nagai City. Agricultural products mostly came from outside their own prefecture. Ten years have passed since then, and now the garbage collection rate is about 50%, and more than 40 farmers joined the project. Now more and more local products are to be seen on the local market. These steps may look insignificant at the moment, but is an essential part of the
process for the future. They will be the basis of a sustainable and recycling society in the long-term.

3. City planning by the citizens

An interesting characteristic of the Rainbow Plan is that the main players are farmers and other citizens. It is not a seemingly typical, environmental-friendly government-led project. In fact, garbage collection from each household is impossible without assistance from the citizens. Mr. Kanno and other citizens are the ones who proposed the plan.

The Rainbow Plan gained the consensus of the whole community by the following process:
1) From a discussion on city planning which was first called for by the mayor, and later it developed into a consultation held by voluntary citizens.
2) A questionnaire on how to collect garbage and on organic farming using garbage compost.
3) Six annual symposiums on garbage-related issues.
4) Training sessions on how to separate garbage, and the research project on the agricultural products grown with the Rainbow compost use.
5) Completion of a compost center where garbage from each household is mixed with animal manure and chaff.
6) Foundation of a consultation for the promotion of the Rainbow Plan. Its office is located in the city council, but members are chosen from the private sector.
7) Establishment of a system to certify agricultural products grown on the basis of the Plan.
8) Distribution of Rainbow vegetables and rice.

4. The outcome of the Rainbow Plan so far and its significance

The following are the five major outcomes of this Rainbow Plan:
1) There was a drastic decrease of 50% in the amount of trash from each household - a saving of half the cost for trash disposal in Nagai City.
2) Nearly 600 tons of compost was produced, supplying materials for organic farming.
3) Eight retail shops were designated as dealing with Rainbow products. They supply vegetables for school meals. Local people recognize the Rainbow Plan as their own project in which they are taking part.
4) The creation of special products made from Rainbow products such as Nagai Noodles (ramen), Rainbow Soba (buckwheat noodles), Rainbow Tofu (bean curd), Rainbow Miso (soy paste), etc., making the city popular for its healthy specialty foods.
5) As a result, during the initial three years of the Plan implementation (1997-1999), as many as 1143 groups and over 150,000 people visited Nagai City to interview personnel
or observe the integrated recycling activity. It has successfully built a brand image of Nagai as the city that preserves the natural environment. The local people are proud of it.

Mr. Kanno says: “What I want to do is not to make Nagai City urbanized. My goal is to make it the best rural town in Japan.” By ‘the best rural town in Japan,’ he may mean the one full of vitality, having lots of grown-ups who are seriously concerned about the future and a unique style that others want to copy. The Rainbow Plan has strengthened the tie between the citizens. Now Nagai City must be very close to Mr. Kanno’s ideal image.

5. The Rainbow Plan in Thailand

Mr. Kanno is one of the representative members of AFEC, and he visits different countries in Asia every year. The Buakhao Village, Kuchinarai District of Kalasin Province in Northeastern Thailand is one of them, and currently the village is approving the Rainbow Plan. The village was an ideal place as it had many facilities to produce garbage, such as markets, restaurants, schools and hospitals. In September 2004, 15 restaurants, 4 schools and 3 markets were the constituent members of the consumer group that was supposed to offer garbage. The producer group of 30 members collected garbage, made compost and distributed it to each organic farm in turn. The local government there was also cooperative, and it offered tanker transport of garbage, and subsidized lectures and workshops for disseminating organic agriculture.

However, trash separation is not universal yet in Thailand, just as it is not in other Asian nations. This makes it difficult for them to move on to the next stage where garbage is collected from each household. In addition, it is still time-consuming to get rid of plastic and cigar waste from collected garbage, though the signboard stating ‘garbage only’ has considerably improved the situation. It may still need time and patient instruction.

Yet the consumer group is gradually acquiring new members as the Rainbow Plan gains a wider audience. Having heard about the case in Buakhao Village, observers started to visit the village from as far afield as Vietnam and the Philippines. We wish the Rainbow Plan there continued success just like Nagai City where its outside reputation made farmers and local consumers confident and proud.

6. Postscript

The Rainbow Plan tries to promote a truly sustainable recycling program at the local level. The most significant feature is that the local people are responsible for supplying materials for fertilizers. Thus once the ball starts rolling and the consumers are integrated into the
project, they can become familiar with organic products grown with their own fertilizers. This solidarity is an effective tool in instructing consumers and promoting organic agricultural products. Additional value is given to the products through the collaboration and involvement of the whole community in SA, and the building up of a brand image for the city. People are proud of living in the area. This plan is not part of agricultural techniques, yet it is a very effective tool for sustainable city planning. An optimal agricultural profit is also expected in the long run. It is hoped that many people in Asia will join the program.