

Farmer Philosopher Masanobu Fukuoka: Humans Must Strive to Know the Unknown (3) Greening Desserts by Clay-Ball Seeding

By Natsuko TOYODA

Editor's note: This is the third and final PROMENADE article on Mr. Masanobu Fukuoka, the father of natural farming, who died on Aug. 16 last year at age 95.

Clay Balls: Answer to Desertification, Food Problems

Last November, I took part in a gathering to test the technique of growing rice and barley as winter crops alternately year after year, a practice pioneered by the late Mr. Masanobu Fukuoka. The event brought together Mr. Tsune Kurosawa, one of the translators of Mr. Fukuoka's book, "*One-Straw Revolution: An Introduction to Natural Farming*," natural farming practitioners and people interested in food safety or food self-sufficiency. We were there to verify once again the wisdom left behind by Mr. Fukuoka. The work was easy, something that even a person with little farming experience can do: scatter clay balls of barley seeds along with clover seeds in the field and then cover them with straw. According to people familiar with the practice of natural farming, growing vegetables and other green produce would be much easier: simply scatter seed clay balls around.

In 1979, this natural farming based on clay-ball seeding caught the eye of Mr. Maurice Strong, executive secretary of the United Nations Convention to Combat Desertification, and Mr. Fukuoka was asked to travel around the world to share his experience in farming and revegetation more than 20 times. In Japan, land greening through clay balls went into a deep slumber during the 1960s-1970s economic boom years. Today, as the world faces increasingly severe environmental problems, the clay-ball technique of revegetation is likely to once again sprout from under the soil.

Let me explain a little bit more about this clay-ball method of "tree planting." Revegetation of barren lands simply involves scattering seed clay balls on the land. There is no need to take care of seedlings. One can sow 1,000 seeds in the same amount of time spent digging a hole and planting a young tree. Seeds mixed into clay balls are protected from insects and other seed predators, and water is stored up in the clay balls from a temperature difference between night and day, creating the necessary environment for clay-ball seeds to germinate. When the season comes, the seeds germinate and the roots sink deep into the soil in search of underground water.

Revegetation with clay balls can be done without regard to the strains of seeds. Actually, it is even desirable to sow more than 100 varieties of



Scattering straw over the seeds

Photos: Susumu Yaginuma

Barley buds sprout through straw two weeks after seeding.



Making seed balls by using sieves for construction

seeds. There is often concern that planting alien seeds could damage the ecosystem, but such fear is misplaced.

The reason is: only seeds that are compatible with the local soil conditions and the local weather will germinate, and plants will not overgrow forever. Anyway, the top priority is to halt the process of desertification.

Once weeds cover the land, the temperature of the top soil will drop and that provides the right condition for tree seeds to germinate. Actually, once the top-soil temperature drops to the right level, maybe the seeds of native vegetation that have remained dormant underground will come back to life. When trees grow and multiply, they will attract worms, insects and other creatures, and together they enrich the ecosystem. When birds come and pick on the fruit of trees, they drop the seeds of native vegetation around. This is how vegetation spreads and creates its own ecosystem.

Clay Balls Here & There in the World

One of Mr. Fukuoka's "disciples" was a Greek named Panayotis Manikis who has faithfully adhered to his master's beliefs and farming methods, indefatigably promoting greening activities in the stony desert lands of his own country. Panos, as Mr. Manikis calls himself, helped turn some of Greece's barren lands green, and by his achievements – especially during the 2004 Athens Olympics – he was known to the Greek parliament. Reportedly he is now flooded with requests from all over the world to help reforest mountains turned barren by fire. When Mr. Fukuoka visited Greece with his clay-ball seeding in 1998, the authorities had made available the necessary budget to pay for manpower, but Panos did the job covering 10,000 ha by recruiting volunteers. To Panos and other like-minded people, money is not at stake when it comes to bringing green back to the land; it is labor of love. In addition, Panos proved through action that using clay balls to plant trees does produce results and can be done by anyone. Mr. Fukuoka once famously noted: "If warplanes carried clay balls instead of bombs and rained them down on barren lands, the earth would become much greener and peace would prevail." True, if clay balls were sown by aircraft, the earth would be much better off indeed.

In the Meiji period (1868-1912), there was a copper-smelting mill in the Ashio district of Tochigi Prefecture in central Japan. The plant belched sulfuric acid gas into the air and turned nearby mountains barren. Nothing grew on the land, triggering what has become known as the Ashio copper mine pollution incident. For nearly 100



Clay balls for greening in Greece: They are big & shaped flat to avoid sliding down the slopes.

Photo: Tsune Kurosawa



Vegetation is restored on mountains in Ashio (2007), once made barren by foul air from a copper smelter.

years, local residents and the government's forestry bureau tried time and again to restore vegetation to the area by planting trees, but the mountains remained barren. Eight years ago, with the understanding and consent of local residents, a group of people began sowing clay balls in the area. "When I saw the place for the first time, I wondered if such a severe state could be restored to normalcy," said Mutsumi Shojaku, a research fellow at Kyoto University's graduate school of agriculture who, collecting any recorded material about Mr. Fukuoka, describes himself as *Fukuokathologist*. "But when I visited there again this year, I couldn't believe the vegetation recovered." Green land begets rain, attracts all sorts of creatures, and this in turn makes the land greener still. This, I believe, is what will happen in Ashio.

In Ishikawa Prefecture, there was a movement three years ago to replant pine trees in the sandy coastal pine zone where pines had died off. The project – proposed by Mr. Kanji Mizutani of the Forestry and Forest Products Research Institute, an independent think tank, and undertaken under the direction of local authorities – involves sowing pine seeds, in clay balls and directly into the soil. According to Mr. Mizutani, when seeds are sown directly into the soil, the seeds that germinate are those that have survived extremely severe environmental conditions and their roots tend to be robust. And if the seeds are sown in the fall, when nature does the job, the pine trees that grow will become sturdier than transplanted pines and more resilient to the environment and to the attack of disease and pests.

Rain Falls from Ground

When vegetation expands, it beckons rainfall. "Rain doesn't fall from above. It falls from below," Mr. Fukuoka once said. It is said that if an area about 10 square km is turned green, rain will fall there. Mr. Ryuji Enokida of Yokohama Art Project, a Japanese nonprofit organization (NPO), has launched a "Rainmaker Project" in Kenya, a program intended to bring rainfall by clay-ball seeding in square patterns, like the squares of a chessboard, on a 10-square-km arid area. The Kenyan government has backed the project as the speed of desertification in the country is severe, with the forestry area shrinking from 15% of the land to less than 3% in 10 years. When the NPO staged a seed-sowing trial, the event almost turned into a festival, with people singing and dancing. Three months later, the fast-growing acacias seeded in the area became so dense and the green area spread so fast that they blocked local roads, inconveniencing local people.

But the real culprit of desertification in Kenya is not the work of nature, but human abuse of the land. Many Kenyans struggling for a living cut trees for fuel, burn land to make room for more farm-



Photos: Yokohama Art Project

Clay balls are produced in large volume by massive manpower in Kenya.



A croton tree growing up from a clay ball

land, and turn land to pasture; in short, they use up everything on the land. As pointed out by Mr. Enokida, more efforts are needed to stabilize the livelihood of local people while at the same time promoting reforestation. Mr. Fukuoka used to argue that human wisdom is virtually useless in the world of nature. Mr. Enokida's Rainmaker Project perhaps is one place where human wisdom can be turned to good use. Still, there must be a comprehensive policy to cope with desertification so that at least people in Africa do not have to chop down trees for fuel.

Farming & Greening Side by Side

Photo: "Overview – Journey of Clay Balls" by Masanobu Fukuoka



"It has become a paradise when I came back 10 years later," said Mr. Fukuoka.

The technique of natural farming has an additional potential: keeping the land green while rescuing people from hunger. The trick is to mix fruit and vegetable seeds with tree seeds. In the documentary film "For Living on Planet Earth," which depicts Mr. Fukuoka's farming-teaching work in India, there is a jungle-like farm where trees are loaded with bananas, papayas and coconuts. The fruit trees need no management and few people bother to venture into the farm except for harvesting. In natural farming, all we need to do is to sow and we will be able to receive the bounty of nature.

Combating desertification is not the only thing seed clay balls can do. One can conceivably sow seed balls even in Siberian permafrost areas where the ice has melted. Or one can save the disappearing corals in Okinawa by ringing the coral coastline with a layer of protective trees. Or one can do so for mangroves. The possibilities of clay balls are enormous, and the cost of sowing them is low. It will be great if companies come out to support such grass-root activities and make contributions to society along the way.

Knowing "Don't Know"

As I traveled around to gather information on natural farming, someone told me that he tried and failed to grow crops through natural farming and then asked me whether there is something wrong with the farming technique. That question really gave me food for thought. I realized that nature has no business in "success" or "failure." In our mind, we may associate the failure of crops to grow as "failure." From the viewpoint of nature, however, the situation was perhaps just a matter of "change," such as changes in the condition of soil. In natural farming, we let nature nurture crops. But the human mind finds it hard to get rid of the idea that it is "we" who make crops grow. I felt a sudden enlightenment. Isn't this the very situation when Mr. Fukuoka observed, "Humans don't know the 'don't know'?" Since Mr. Fukuoka himself went so far as to say "everything I wrote is useless," there is no way for us to understand everything. At the very least, we should realize that while we keep on saying humans live by nature, oftentimes we forget this fact.

In his later years, Mr. Fukuoka left us many gems of wisdom, all of which I think contain this message: "Take good care of Mother Earth." If mankind wants to leave a gentle footprint on Mother Earth, natural farming is certainly one way to go, and this is a tool that is open to everyone. When modern farming reaches its limits, the significance of all this will become crystal clear. Therefore, my gratitude once again to Mr. Fukuoka who left us with his lifetime legacy of natural farming. * JS

Natsuko Toyoda is a member of the Japan SPOTLIGHT editorial staff.

*A booklet summarizing his achievements in both Japanese and English, to be known as "IROHA Revolutionary Verses," will be published on his birthday, Feb. 2. It will contain poems and pictures of Mr. Fukuoka. (Contact: shojaku@hotmail.com)