Developing Countries Farm Radio Network

Pack 14, Item 13

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**Raising fish in the paddy field, part 1: Why and how** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Information on subject areas contained in this item was requested by DCFRN Participants in Argentina, Bangladesh, Burundi, Chile, Colombia, Dominican Republic, El Salvador, Fiji, Ghana, Guyana, Honduras, India, Indonesia, Liberia, Maldives, Mexico, Nigeria, Panama, Papua New Guinea, Philippines, Puerto Rico, Republic of China (Taiwan), Trinidad and Tobago, Uganda, and Uruguay.

Presenter: George Atkins

Interviewee: Wung Ing Gen, a farmer, An Yuan Commune, Ninghua County, Fujian Province, People's Republic of China

Interpreter: Lei Qi Shi, Chinese People's Association for Friendship with Foreign Countries, Fuzhou, People's Republic of China

**Special notes**

1. The information in this item is only applicable to farmers who grow rice in small, shallow water paddy fields. It was obtained in an interview with a rice grower beside his paddy field in China. Fish could not be raised, of course, in paddy fields where poison chemical pesticides are used that would be harmful to fish or to people who eat them. (A warning to this effect is included in the item.)

2. Re: interpreting/translating this information for farmers you serve: The Chinese land measure unit is the "mu" (pronounced "moo"). It is unlikely that this unit will be known bythe farmers you serve. I therefore urge you to go over the information carefully before using it and be sure that units you use will be in terms familiar to your farmers. Throughout the manuscript, metric and/or imperial measures appear in brackets. The farmer being interviewed speaks only Chinese so all English language answers to questions are provided by the interpreter. In most cases, I repeat the information in somewhat different wording. I have done this to emphasize the essential information from the interview as clearly as possible to pass on to your farmers. (G.A.)

3. Before using the information in this item, please read the notes at the end concerning related DCFRN items.

**Suggested introduction**

We at this radio station are part of a worldwide information network that gathers farming information from developing countries all over the world. It's the Developing Countries Farm Radio Network, sponsored by Massey Ferguson and the University of Guelph, and financially supported by the Canadian International Development Agency and by many interested Canadians.

Through this Network, we bring you information on ways to increase food supplies for your family, or to sell—ways that other farmers have used successfully.

Today our subjects are rice and fish—both together. Here's George Atkins.

**ATKINS:** Did you know that some farmers in China and in othercountries raise fish in their paddy fields? And that they get higher rice yields because of the fish?

Professor Ni Dashu of the Institute of Hydrology in the Chinese Academy of Science says that when farmers do this, their rice plants are stronger and produce up to one-third more rice (actually from 10% to 37% increase).

In Fujian Province I visited Wung Ing Gen, a farmer in Ninghua County who raises fish in his paddy field. Through my interpreter, Lei Qi Shi, he told me the advantages of doing this.

**LEI:** There are four advantages. One is the fish help the farmer to control insects. The fish eat the insects down at the bottom of the plants. Another is that they loosen the soil in the paddy field. The fish easily till it—they get rid of the weeds.

**ATKINS:** Like cultivating the soil?

**LEI:** Yes. Another is the fish also leave their droppings—that's like manure for the paddy crop.

The fourth advantage is you can improve your living standard because the fish can be eaten as meat. So there are four advantages altogether.

**ATKINS:** Of course, fish could not be raised in paddy fields where poison chemical pesticides are used—that could be harmful to the fish and to people who eat them.

Now as we stood near Mr. Wung's paddy field, I first asked about feed for the fish. He told me it's actually the same as the plant food for the two rice crops he grows in his paddy field each year.

**LEI:** He puts manure into the paddy field from cattle, pigs, and chickens.

**ATKINS:** And he puts this fish feed and plant food in the paddyfield before the first rice crop is even planted. But how much manure would he need to put into the paddy field per mu (per hectare) (per acre)?

**LEI:** He puts about 2,000 kilograms per mu (30 tonnes per hectare) (13 tonnes per acre) into the paddy field. He puts manure in the winter as the basic manure for the whole growing season before putting the seeds into the paddy field.

**ATKINS:** Then does he put in more later as well?

**LEI:** After he puts the small fish into the paddy field, he alsoputs some cattle or chicken manure into the ditches of the paddy field—but not a large amount.

**ATKINS:** How much?

**LEI:** About 200 kilograms for 2 mu (1-1/2 tonnes for 1 hectare) (2/3 of a ton for 1 acre) of paddy field.

**ATKINS:** And that's just in the ditches around the outside?

**LEI:** Yes. Usually there are ditches around the border. Thedepth of the water in the ditches is 30 centimetres (1 foot) and fish can come to the ditch.

**ATKINS:** So they get some of their food there in the ditch during the growing season. But, of course, they also eat insects,mosquito larvae, and other things as well.

As we walked over to see the fish in Mr. Wung's paddy field, we passed some small ponds. When I asked what they were, he told me they are where his adult fish spawn and where he rears the young fish each year. He doesn't have to buy young fish every year because he raises his own. We'll talk about how he does that another day on this program.

When we reached the paddy field, Mr. Wung told me that the size of it is 2 mu or just less than 1/7 of a hectare (2/15 hectare or 1/3 acre). There were lots of fish swimming around among the growing rice plants. They were grass carp and Chinese carp. He told me that he doesn't put these fish into the paddy field until about a month after new rice seedlings have been planted.

Now just for a moment, let's think again about why Mr. Wung raises fish in his paddy field. Remember he said:

\* that they help control insects

\* that they loosen the soil, thus helping to control weeds, and

\* that their droppings help to fertilize the soil. All those things, Professor Ni Dashu says, can result in rice production increases of up to 1/3 (33%).

The fourth advantage is, of course, the crop of fish for eating or to sell. And how big do those fish grow to be?

**LEI:** The largest fish will grow to more than 1/2 a kilogram (1-1/4 pounds) after one year in the paddy field. The smaller ones will grow to about 1/2 a kilogram (1 pound).

**ATKINS:** How much total fish would Mr. Wung get for food for his family or to sell in a year from this paddy field?

**LEI:** He will get 100 kilograms (220 pounds) of fish from these 2 mu (just less than 1/7 hectare) (1/3 acre) per year.

**ATKINS:** And he also eats some of these fish and sells some too. And from the two crops of rice that he grows in his paddy field, how much yield would he get from 2 mu (2/15 hectare) (1/3 acre) in 1 year?

**LEI:** He gets 1,400 kilograms (3,000 pounds).

**ATKINS**: That's the total amount he harvests from two crops that he grows on these 2 mu (just less than 1/7 hectare) (1/3 acre) in a year?

**LEI:** Yes.

**ATKINS:** Now if he did not have fish in the paddy field, whatyield could he expect per mu (per hectare) (per acre) in a year?

**LEI:** If he did not raise fish in the paddy field, he would have30 kilograms less of paddy rice per mu (450 kilograms less of paddy rice per hectare) (396 pounds less of paddy rice per acre).

**ATKINS:** So he would have 30 kilograms less of rice per mu (450kilograms less of rice per hectare) (396 less pounds of rice per acre) in a year if he did not have the fish in his rice paddy?

**LEI:** Yes.

**ATKINS:** Thank you very much, Wung Ing Gen, here in Ninghua County in Fujian Province in the Peoples' Republic of China—and thank you Lei Qi Shi for interpreting this very interesting and useful information for us here in China.

Serving Agriculture, the Basic Industry, this is George Atkins.

**Notes**

1. This is the first of two items in this package on the subject of raising fish in the paddy field. Please use the information in Item 13 (Part 1) and in Item 14 (Part 2) in the proper sequence.

2. This item deals with two different types of agricultural enterprises that can be carried on at the same time. They are raising fish and growing rice in small, shallow water paddy fields. Each helps the other, thus saving and making more money for the farm family.

3. Mr. Wung Ing Gen who was interviewed for the information in this item indicated that he also intended to try raising ducks in his paddy field. This is a subject that was dealt with in another DCFRN item, one which you might consider using in association with this item. It is:

Raising ducks in the paddy field – DCFRN Package 11, Item 5.

4. You might also like to use the information contained in other DCFRN items that address rice growing, at the same time as this one:

A ‘Dapog’ saves time for rice growers – DCFRN Package 3, Item 4.

Fertilizer made with rice straw – DCFRN Package 6, Item 5.

Improving the field crops you grow by selection - DCFRN Package 9, Item 6.

Improving rice yield without buying fertilizer- DCFRN Package 12, Item 5.

Growing soybeans on dikes in paddy fields – DCFRN Package 14, Item 9.

5. For your information, the equivalences for the units of measure in this item are the following:

15 "mu" = 1 hectare (1 mu = 1/15th of a hectare)

6 "mu" = 1 acre (1 mu = 1/6th of an acre)

**Sources of information**

1. Wung Ing Gen, République Populaire de Chine.

**Additional sources of information**

1. DCFRN participant Shawn Taylor, a SUCO co-worker in Thailand.

2. Integrated Agriculture Aquaculture Systems. ICLARM. Conference notes 4 (1980, 258 pages) edited by the International Center for Living Aquatic Resources Management (ICLARM), Manila, Philippines. <http://pubs.iclarm.net/resource_centre/WF_214.pdf>

3. Proceedings of a joint workshop on Aquaculture. South China Sea Fisheries Program (1977). <http://www.fao.org/docrep/field/003/AC015E/AC015E00.htm>