

## Health Problems In Japanese Rural Areas

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### Introduction

After the World War II, Japan had made remarkable progress in economy. But on the other hand a lot of problems have occurred, not excepting the health problems in the Japanese rural areas.

I have classified the Toyama rural health problems of the day to next six. Some problems can be able to generalize all over the country.

1. Increasing diseases of adult people, for example cancers, heart diseases, cerebral diseases, and so on.
2. Progressing of aged people's society. Who cares aged peoples?
3. Problems by agricultural modernization, for example, poisoning from agricultural pesticides, accidents by agricultural machines, and so on.
4. Environmental disruption and air pollution, water pollution, soil pollution, and so on.
5. Decreasing professional farmers, increasing farmers with side job. People who doing farming on the side works in the office on weekday, and on Sunday or national holiday still works to farm, so they can't refresh and have enough rest,

compared with another workers, they are very tired everytime.

6. Problems from No.1 to No. 5 are coming from modernized agriculture and society. But in Japanese rural areas there are some health subjects still remained causing by unhygienic environment and feudal relationships.

Especially Toyama Prefecture's farming and rural areas are marked by next three points.

1. Ratio of paddy field in the cultivated field is 95.8%, the first rank in this country. (Japanese average is 54.2%, 1993)
2. Ratio of agricultural machine of propagation is the top rank in the country.
3. Ratio of farmers with a side job in the all type farmers is 96.4%, the first rank in the country. (Japanese average is 87.9%)

For example, I have only 150a farming land, this year 140a will be used for growing rice grain, 10a will be taro, bean, and other vegetables.

My father-in-law had bought a riding

tractor, working tractor, riding rice transplanter, binder, combine, rice dryer, rice husker, two grass cutters, rice polishing machine and so on.

I and father-in law, mother-in-law are farming on Sunday and national holidays in the season of rice growing, but on weekday and out the season of rice growing, I work in the office and in the institute, father-in-law work for certain little company, mother-in-law is housekeeping, and my wife is a teacher.

## I. To Resolve The Health Subjects In Rural Areas

### (1) Established Hospitals For Rural People

Toyama Welfare Federation of Agricultural Cooperatives (Toyamaken Koseiren, 富山県厚生連) had established by Agricultural Cooperatives and farmers, 58 years ago in 1936. They built a hospital with their own money at that time, and today this hospital has now 712 beds, and everyday over 1,600 patients are coming. In 1945 the second hospital was built having 286 beds, and everyday over 600 patients are coming now.

About 60 years ago, Japanese rural economy was destroyed by a financial Crisis, named Shyowa Agricultural Crisis.

In that time rural people didn't have enough cure, because they did have little money, and there was no medical doctor, medical clinic in the rural areas, so a lot of rural people were past cure. Then the leaders of Agricultural Cooperatives had made a confirm resolution to build our own hospital for rural people.

In all Japanese rural areas a lot of agricultural Cooperatives's leaders had risen to build our own hospitals, and now in Japan there are 115 hospitals established by the Agricultural Cooperatives.

### (2) Health Keeping In Rural Areas

The purpose of these hospitals is not only curing patients but also preventing disease to get medical care before it is too serious. So as soon as these hospitals were established, the staffs went to rural areas to find diseases and symptoms early, and to cure early. And now this activity has progressed to Health Screening System.

All hospitals and organizations established by Agricultural Cooperatives is now doing Health Screening, and some has Health Screening Centers. A lot of cancers and other disease are found early, many person are helped the life.

In Yachiho Village (in Nagano Prefecture) the most famous Health Screening system had started by Saku Hospital's staffs in 1959. Also this hospital was established by agricultural cooperatives.

In this Yachiho Village all inhabitants are list up, and every year taking Health Screening. This system has decreased a lot of disease. This exciting and successful trial system had accepted by the Japanese Welfare Ministry. In 1988 the low named Rojin-Hoken-ho was established. Every year all over 40 years old person can take Health Screening, by paying a little money.

### (3) Progressing Of Aged People's Society

Japanese industry has made rapid progress and the number of aged people are increasing at a rapid pace, especially in

rural areas at high pace.

For example in my village there are 30 families, and 130 person are living, the ratio of over 65 years old persons is now 22.5%, and ten years after this ratio will be 33.3%, I estimate.

In the two families only one old woman is living, in four families only one old pair is living. Who cares these old people? Now in Japan our hospitals and agricultural cooperatives begin to bring up a lot of homehelpers and build establishments to care old people

#### (4) To Research The Rural Health Problems

Resolving the rural health problems Japanese Society of Rural Medicine had established in 1952, and the Japanese Institute of Rural Medicine had established in 1963.

Our Toyama Society of Agricultural and Rural Medicine (Toyama-SARM) had established in 1969, and our Institute in 1972.

Now in this report I'll show some investigations studied by our Toyama-SARM and the Institute.

## II. A Statistical Survey of Clinical Cases of Agricultural Accidents by Farming Machines in Toyama Prefecture

In Toyama Prefecture from about 1965 agricultural machines had been propagated, accidents by agricultural machines had increased.

In Toyama Prefecture Toyama - SARM had started the project to gather the clinical cases of agricultural accidents to find the cause of accidents from 1970. And the result of this survey is used to protect the acci-

dents.

To gather the cases Toyama-SARM send a investigation paper to a all surgeons, orthopedic surgeons, and bone setters every years in Toyama Prefecture, the numbers are about 750.

I show some of the result. (Table 1 ~ 9, Fig. 1 ~ 3)

On the Fig.1 you can see that the total annual incidence is decreasing from 1976. A few years ago from 1976, the Japanese National Assembly discussed the way of preventing the accidents by agricultural machines using our results of the survey.

In 1976 the National Assembly decided the important system.

The system says all new agricultural machines after 1976 must be checked up the safety, for example moving belts, chains, and others must be covered.

On Fig.3 I compared the sites of combine injured human body in 1975 with in 1980.

In 1980 the accidents by chains and belts were decreased compared with in 1975. I am convinced that the system established 1976 decreased the accidents by chains and belts.

Table 1 Annual Incidence of Accidents by Agricultural Machines

Type of Machine \ Year	'70	'71	'72	'73	'74	'75	'76	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	Total
Combine	26	36	44	121	157	164	162	200	143	101	103	92	84	46	48	44	34	35	34	20	24	1,718
Grass Cutter	2	0	3	7	11	14	13	11	15	27	32	15	29	24	15	22	24	21	7	16	15	323
Riding Tractor	9	11	8	8	6	18	21	14	24	23	26	30	27	27	13	25	9	14	10	3	15	341
Walking Tractor	16	8	9	38	72	61	52	17	41	42	31	23	18	17	10	11	7	12	9	4	4	502
Rice Transplanter	0	0	0	9	2	15	17	3	7	6	5	0	8	4	2	3	7	6	3	8	1	106
Sprayer (on the back)	0	2	3	4	0	6	1	0	1	3	6	6	9	8	0	7	6	3	0	4	2	71
Rice Husker	1	1	5	12	25	15	17	18	18	12	13	6	17	1	1	5	4	3	3	3	2	183
Rice Dryer	0	2	3	10	9	11	18	12	14	17	12	8	4	3	2	3	4	1	3	2	4	142
Rice Thresher	4	5	5	43	26	22	17	11	5	13	9	6	2	0	4	4	2	3	2	1	0	184
Trailer	18	15	29	67	48	55	16	3	4	6	6	4	5	3	2	1	4	1	0	1	2	290
Binder	1	9	7	29	14	13	12	4	1	4	2	2	1	0	1	1	0	0	0	0	1	102
Straw Cutter	1	3	5	9	0	2	3	0	1	1	0	0	2	0	0	0	0	0	0	0	0	27
Others	4	2	6	8	21	3	3	11	1	12	10	6	29	34	16	7	11	9	3	9	6	211
Total	82	94	127	365	392	399	352	304	275	267	255	198	235	167	114	133	112	108	74	71	76	4,200

Fig. 1 Annual Incidence of Accidents by Agricultural Machines (1)  
(in Toyama Prefecture)

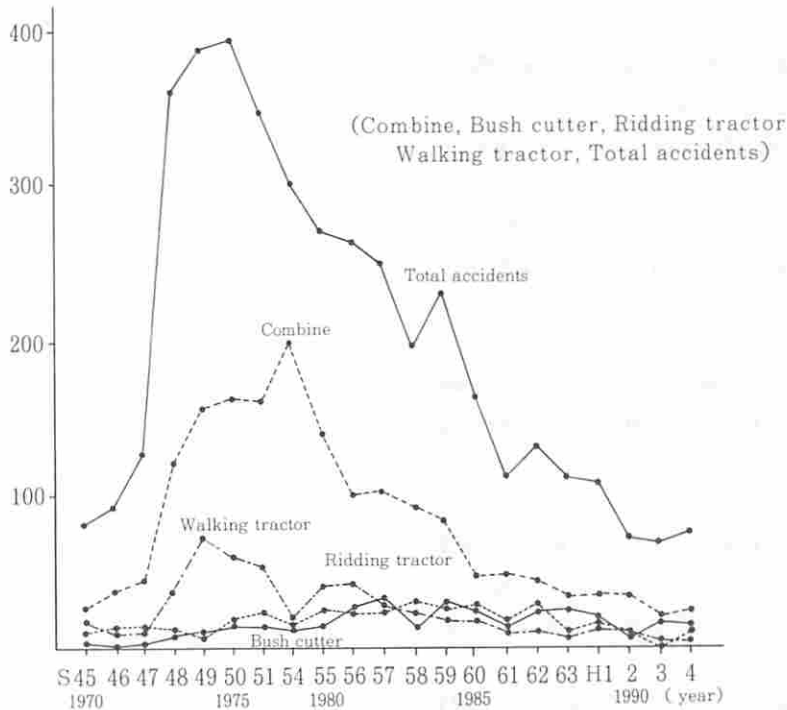


Fig. 2 Annual Incidence of Accidents by Agricultural Machines (2)  
(in Toyama Prefecture)

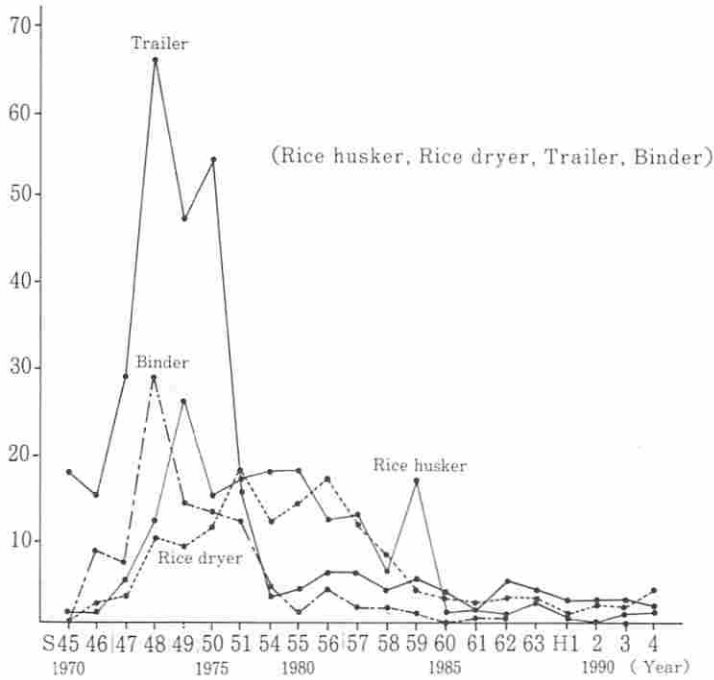


Table 2 Accidents by Agricultural Machines for Three Period

Year	First Period	Second Period	Third Period	Total	Ratio			
					First Period	Second Period	Third Period	Total
Type of Machine	'70~'76	'79~'85	'86~'92					
Combine	710	769	239	1,718	39.2	45.2	34.7	40.9
Grass Cutter	50	153	120	323	2.8	9.0	17.4	7.7
Riding Tractor	81	171	89	341	4.5	10.1	12.9	8.1
Waking Tractor	256	189	57	502	14.1	11.1	8.3	12.0
Rice Transplanter	43	33	30	106	2.4	1.9	4.4	2.5
Sprayer (on the back)	16	33	22	71	0.9	1.9	3.2	1.7
Rice Husker	77	85	21	183	4.3	5.0	3.1	4.4
Rice Dryer	53	70	19	142	2.9	4.1	2.8	3.4
Rice Thresher	122	46	16	184	6.7	2.7	2.3	4.4
Trailer	248	31	11	290	13.7	1.8	1.6	6.9
Binder	85	14	3	102	4.7	0.8	0.4	2.4
Straw Cutter	23	4	0	27	1.3	0.2	0.0	0.6
Others	47	103	61	211	2.6	6.1	8.9	5.0
Total	1,811	1,701	688	4,200	100.0	100.0	100.0	100.0
Average/year	258.7	243.0	98.3	200.0				

Table 3 Age and Sex Distribution of Patients ('86~'92)

Age	Number			Ratio		
	Male	Female	Total	Male	Female	Total
0~	3	1	4	0.6	0.6	0.6
10~	6	2	8	1.1	1.3	1.2
20~	29	3	32	5.5	1.9	4.7
30~	67	13	80	12.8	8.4	11.8
40~	111	42	153	21.2	27.3	22.6
50~	145	48	193	27.7	31.2	28.5
60~	121	33	154	23.1	21.4	22.7
70~	37	12	49	7.1	7.8	7.2
80~	4	0	4	0.8	0.0	0.6
Total	523	154	677	100.0	100.0	100.0

Table 4 Age Distribution of Patients for Three Period

Age	Number			Ratio		
	'70~'76	'79~'85	'86~'92	'70~'76	'79~'85	'86~'92
	First	Second	Third	First	Second	Third
0~	48	45	4	2.8	2.6	0.6
10~			8			1.2
20~	184	131	32	10.8	7.5	4.7
30~	371	344	80	21.8	19.6	11.8
40~	460	461	153	27.0	26.3	22.6
50~	386	454	193	22.6	25.9	28.5
60~	256	320	154	15.0	18.2	22.7
70~			49			7.2
80~			4			0.6
合計	1,705	1,755	677	100.0	100.0	100.0

Table 5 Monthly Incidence of Traumas ('86~'92 Tird Period)

No	Month Type of Machine	1	2	3	4	5	6	7	8	9	10	11	12	Total
		1	Waking Tractor	1		5	21	12	2	2	3	8	3	
2	Riding Tractor	2	1	3	32	13	5	6	6	10	4	6	1	89
3	Trailer		1		3		1		1	5				11
4	Combine	2	2	1	1	1	8	4	10	176	33	1		239
5	Binder									2	1			3
6	Rice Thresher									6	10			16
7	Rice Husker								1	14	3	2	1	21
8	Grass Cutter	1	1		4	11	20	29	31	10	13			120
9	Rice Dryer		1				1			15	2			19
10	Rice Polisher	1	2			2		1	1	2	2	2	1	14
11	Rice Transplanter				7	22				1				30
12	Sprayer (on the back)			1		4	1	6	7	3				22
13	Others	1		1	7	7	4	2	5	6	8	1	1	43
	Total	8	8	11	75	72	42	50	65	258	79	12	4	684

Table 6 Hourly Incidence of Traumas

Type of Machine	Hour																					Total
	5~	6~	7~	8~	9~	10~	11~	12~	13~	14~	15~	16~	17~	18~	19~	20~	21~					
Walking Tractor	1	1	2	3	3	5	3	1	2	2	4	2	1	3	1						34	
Riding Tractor		1	2	3	3	10	4	3	2	2	6	4	6	9	2						57	
Trailer			1	1						2		1	1		1						7	
Combine			3	6	6	13	21	7	2	14	18	12	16	12	3						133	
Binder																					0	
Rice Thresher					2						1	2	1								6	
Rice Husker			1	1		1	1			2			1	1							8	
Grass Cutter	1	10	7	8	9	20	5	5	3	1	8	7	3	8							95	
Rice Dryer					1		1	1		3		2		2	1					2	13	
Rice Polisher		1	1	1	2	1	1				1	1									9	
Rice Transplanter		3	1		2	2	5	2	1		1				1	1					19	
Sprayer (on the back)		2	1	3	1	2	1	1						3	5	1					20	
Others	1		1	4	1	3	3	2	2	2	2	5	1	2							29	
Total	3	18	20	30	30	57	45	22	12	28	41	36	33	43	10	0	2				430	

Table 7 Weekly Incidence of Accidents

Week	Number	Ratio	Number/day	Accidents Ratio
Mon	84	12.4	0.25	1.17
Tue	78	11.5	0.22	1.06
Wed	83	12.2	0.24	1.12
Thu	75	11.0	0.21	1.00
Fri	75	11.0	0.21	1.01
Sat	90	13.2	0.26	1.21
Sun	142	20.9	0.40	1.91
Holiday	53	7.8	0.51	2.42
Total	680	100.0	0.27	1.26

Accidents Ratio : Compared with Wednesday's Accidents Number per day

Table 8 Injured Sites of Body by Main Fore Macines and Total

	Walking Tractor			Riding Tractor			Combine			Grass Cutter			All Machines		
	Right	Left	All	Right	Left	All	Right	Left	All	Right	Left	All	Right	Left	All
Head						3			4						4
Face						1			3		2				1
Neck						3			1			1		2	3
Shoulder	1	2			1		2	1		4	2		9		
Chest	2	4		2	1		1	2		1			6	7	2
Back					1					1	1		1	12	
Waist		1	1			3	1	1	2				7	1	2
Hip															1
Upper Arm				1			1	1					2	1	
Elbow	3	1						2		1			4	4	
Fore Arm				1	1		1	3		1	4		7	10	
Rist	2									1			5		
Hand and Finger	5	2		10	7		91	57		7	13		159	116	
Thigh Joint			1	2	2								4	3	
Thigh	1				1		2			4	2		10	6	
Knee	3	1		2	2		2	1		4	3		12	8	
Calf and Shank	1	2		1	4		3	1		1	5		10	18	
Ankle					1		2						2	3	
Foot and Toe	2			2	7		3	6		14	16		25	36	
Total	20	14	1	21	28	10	108	74	12	39	48	8	257	229	17

Table 9 Site of Combine Injured Body

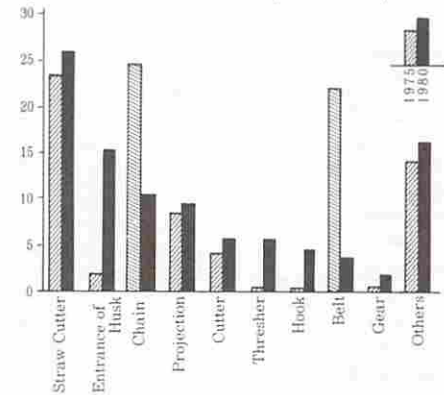
	1975		1980	
	Number	Ratio	Number	Ratio
Straw Cutter	38	23.5	27	26.0
Entrance of Husk	3	1.9	16	15.4
Chain	40	24.7	11	10.6
Projection	14	8.6	10	9.6
Cutter	7	4.3	6	5.8
Thresher	0	0.0	6	5.8
Hook	0	0.0	5	4.8
Belt	36	22.2	4	3.8
Gear	1	0.6	2	1.9
Others	23	14.2	17	16.3
Total	162	100.0	104	100.0

III. A Statistical Survey of Clinical Cases of Poisoning by Agricultural Pesticides in Toyama Prefecture

(Compared With Poisoning In China)

In Toyama Prefecture Toyama-SARM had started the project to gather the clinical cases of poisoning by agricultural pesticides to prevent poisons from 1980. The method of survey is the same as accidents, sending the investigation paper to all physicians, surgeons, children's doctors, eye doctors,

Fig.3 Site of Combine Injured Body (%)



and dermatologists in Toyama Prefecture, numbers are about 650.

Last year in China (in 河南省) using our methods chinese doctors started the survey of pesticides poisoning. The population of Chinese studying areas in 891,000, Toyama's 1,211,000.

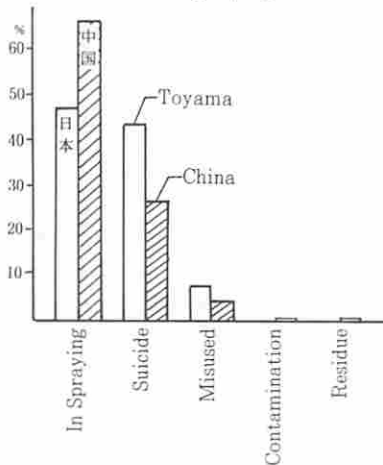
I now here compare the Toyama poisoning with china's.

(Table 1 ~ 5 Fig. 1 ~ 9)

Table 1 Clinical Cases Poisoned With Agricultural Pesticides

	Number		%		Dead		Death Rate	
	Toyama	China	Toyama	China	Toyama	China	Toyama	China
In Spraying	43	379	47.8	67.3	0	3	0.0	0.8
Suicide	40	151	44.4	26.8	23	9	57.5	6.0
Misused	7	26	7.8	4.6	4		57.1	0.0
Contamination		2		0.4				0.0
Residue		5		0.9				0.0
Total	90	563	100.0	100.0	27	12	30.0	2.1

① Cause of Poisoning by Agr. Pesticide



② Death Rate by Agr. Pesticide

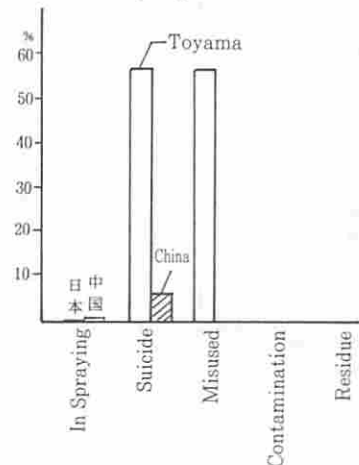
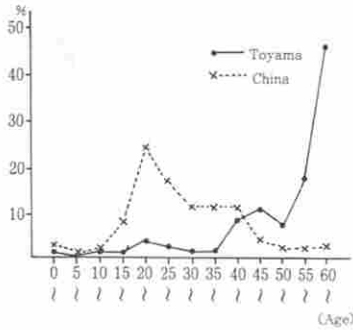




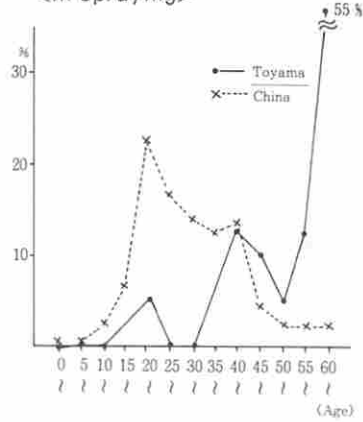
Table 2 Age Distribution of Poisoning Clinical Cases

	In Spraying		Suicid		Misused		Contamination	Residues	Total	
	Toyama	Chaina	Toyama	Chaina	Toyama	Chaina	Chaina	Chaina	Toyama	Chaina
0 ~					1	15			1	15
5 ~						4		1	0	5
10 ~		9		3	1				1	12
15 ~		26	1	17		1			1	44
20 ~	2	85	1	49		3			3	137
25 ~		62	2	33				2	2	97
30 ~		53	1	12					1	65
35 ~		48	1	11		2		2	1	63
40 ~	5	51	2	12					7	63
45 ~	4	17	4	4	1	1			9	22
50 ~	2	10	4	2			1		6	13
55 ~	5	9	10	2					15	11
60 ~	10	9	3	6	1		1		14	16
65 ~	6		7		1				14	
70 ~	6		4		2				12	
Total	40	379	40	151	7	26	2	5	87	563

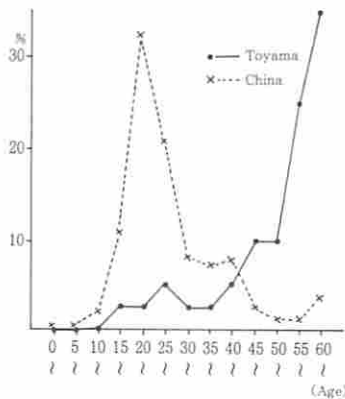
③ Poisoning Age Distribution (%)



④ Poisoning Age Distribution (%) <In Spraying>



⑤ Poisoning Age Distribution (%) <Suicide>



⑥ Poisoning Age Distribution (%) <Misused>

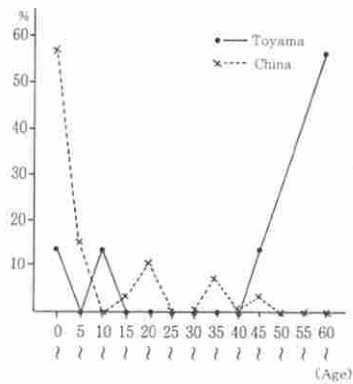


Table 3 Monthly Incidence of Poisoning Patients

Month	In Spraying		Suicid		Misused		Contamination	Residues	Total	
	Toyama	Chaina	Toyama	Chaina	Toyama	Chaina	Chaina	Chaina	Toyama	Chaina
1			1	14					1	14
2		2	3	7					3	9
3	2		2	9					4	9
4	5	2	2	17		2			7	21
5	6	4	3	13		2		1	9	20
6	6	15	4	16	1	5			11	36
7	2	199	5	22		5	1	2	7	229
8	9	106	6	14	1	3			16	123
9	2	20	3	11	2	5		1	7	37
10	3	5	5	11	1	1			9	17
11		1	4	8	2	3		1	6	13
12	1	3	2	4			1		3	8
Unknovn	7	22		5					7	27
Total	43	379	40	151	7	26	2	5	90	563

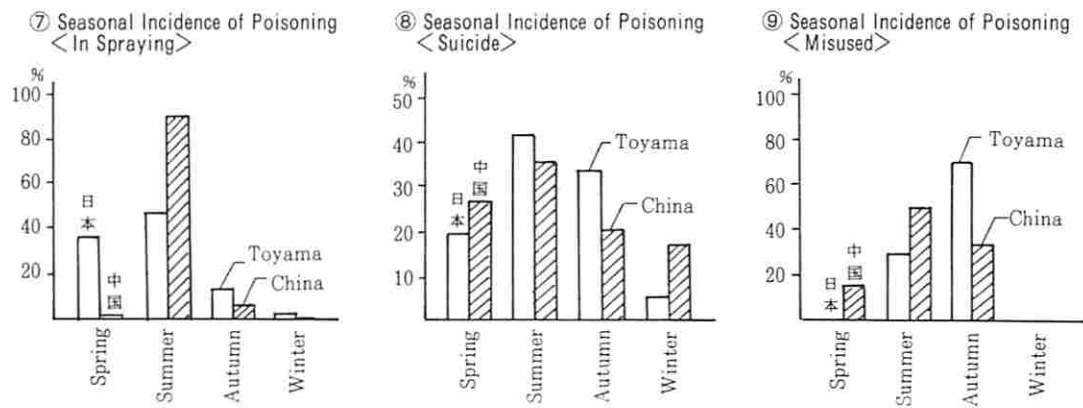
Table 4 Poisoning from Agr. Pesticide in China

	Spraying	Suicide	Misused	Cotamina-tion	Residue	Total	Dead	Death Rate
Organic Phosphor	365	114	21	2	5	507	10	2.0
Carbamate	11	13	2			26	1	3.8
Piretorin	1	15	3			19		
Chlorinated Hydrocarbon		3				3		
Organic Arsenic	1					1		
Others	1	6				7		
Total	379	151	26	2	5	563	11	2.0

Table 5 Poisoning from Agr. Pesticide in Toyama

		In Spraying	Suicid	Misused	Total	Death Rate
Herbicides	Paraquat	0 / 21	20 / 24	3 / 3	23 / 48	47.9
	Others	0 / 3	1 / 3	1 / 1	2 / 7	28.6
Insecticides	Organic Phosphor	0 / 8	0 / 8	0 / 2	0 / 18	0.0
	Carbamate	0 / 1	0 / 1		0 / 2	0.0
	Others	0 / 3	1 / 2	0 / 1	1 / 6	16.7
Fungicides		0 / 5			0 / 5	0.0
Others		0 / 2	1 / 2		1 / 4	25.0
Total		0 / 43	23 / 40	4 / 7	27 / 90	30.0

(deads/cases)



Information of Pesticide Package (in New Zealand)



Character of 「POISON」 is larger than pesticide name, 「LINDEN」

