

Composition of Food Rations Collected
at Rongelap Island September, 1959.
(Each sample is a 24 hr. ration)

Sample number	Contributor	Description of food items	Wet wt. grams	Total wt.dry
1	Berberin	a) Pandanus paste, boiled rice and baked fish(mixed)	253	374.68
		b) Partly baked bread dough with bully beef	252	
		c) Bully beef sandwiches	195	
2	Paul	a) Coconut meat (green)	30	175.85
		b) Pandanus "pie"	16	
		c) Baked fish	23	
		d) Sardines, canned	20	
		e) Boiled rice w/coconut milk	249	
3	No name	a) Breadfruit, baked	41	87.12
		b) Coconut and bread dough, baked	24	
		c) Bread	31	
		d) Bully beef	17	
		e) Ship's biscuit	13	
		f) Rice w/coconut milk, boiled	49	
4	Bwio	a) Coconut, ripe	72	321.69
		b) 1/2 Papaya	57	
		c) Rice and fish (mixed)	306	
		d) Bread, local (coconut milk, not saved)	81	
5	Atha	a) Rice and Fish mixed	243	203.16
		b) Bread, local	80	
		c) Rice	197	

NMB 6

Rpngelap food samples (continued)

<u>Sample number</u>	<u>Contributor</u>	<u>Description of food items</u>	<u>Wet wt. grams</u>	<u>Total wt.dry</u>
6	Mellelon	a) Breadfruit, baked	203	484.10
		b) Coconut w/baked dough	203	
		c) Fish, baked	126	
		d) Bread, local	75	
		e) Coconut, entire	50	
		f) Rice, boiled	291	
		g) Sardines, canned	154	
7	Menana	a) Pandanus Keys, raw	115	314.90
		b) Goatfish, baked	26	
		c) Sardines, canned	101	
		d) Rice, boiled	721	
8	Lisie	a) Fish, baked	155	440.50
		b) Bread, local	145	
		c) Bully beef	66	
		d) Sardines, canned	94	
		e) Rice, boiled	622	
9	Kaser	a) Rice and fish mixed	421	262.30
		b) Rice and fish mixed	64	

5002218

Radioisotopes and Potassium and Calcium in Food Rations
Collected at Rongelap Island, September 1959.

Sample number	<u>Co⁶⁰</u>		<u>Zn⁶⁵</u>		<u>Cs¹³⁷</u>		<u>K</u>	<u>Sr⁹⁰</u>		$\mu\text{uc/gmCa}$	Error
	10^{-5} μc	95% counting error	10^{-4} μc	95% counting error	10^{-4} μc	95% counting error		grams	10^{-5} μc		
1	5.9	2.0	0.67	0.49	100	1.0	0.175	14.2	1.18	497.0	41.4
2	4.2	2.0	*		11	0.40	0.193	12.9	1.27	1239.0	121.6
3	*		*		8.3	0.34	0.212	4.90	0.98	612.7	122.5
4	3.3	1.9	*		26	0.55	0.200	6.20	0.87	1339.2	47.3
5	3.9	2.0	*		3.3	0.26	0.246	1.92	0.82	248.4	106.5
6	20.0	4.8	3.7	0.65	35	0.63	0.403	14.4	1.31	139.7	12.7
7	7.9	2.0	1.2	0.50	28	0.54	0.570	12.2	1.14	300.1	27.9
8	24.0	3.0	5.0	0.82	5.9	0.34	0.258	4.36	0.99	158.8	36.1
9	3.9	1.9	*		3.1	0.25	0.359	3.78	0.95	331.1	82.8

Each sample number represents one days ration for one adult male. Values given are per total ration.

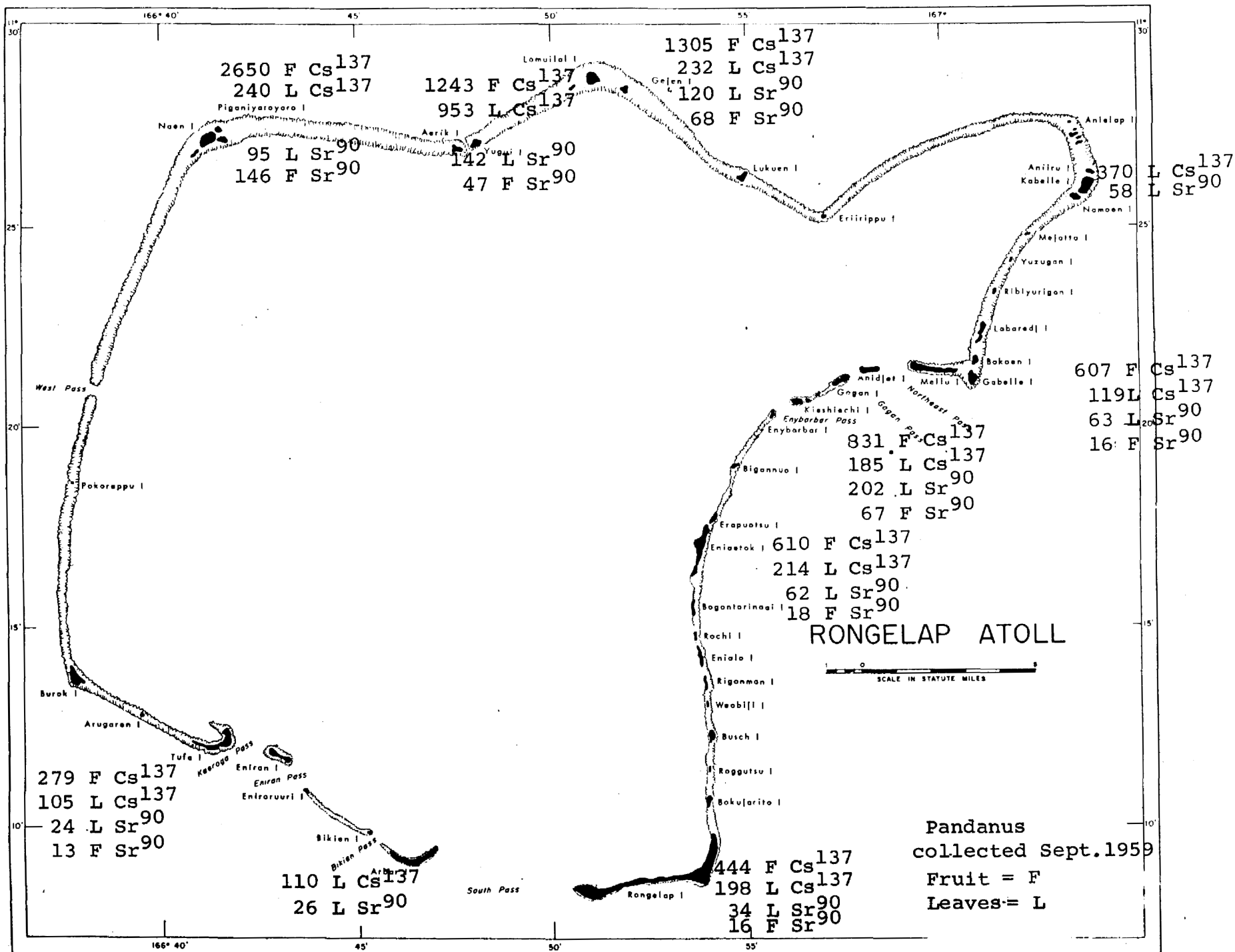
* indicates values less than, or not different than background
(see d/m/g tabulation).

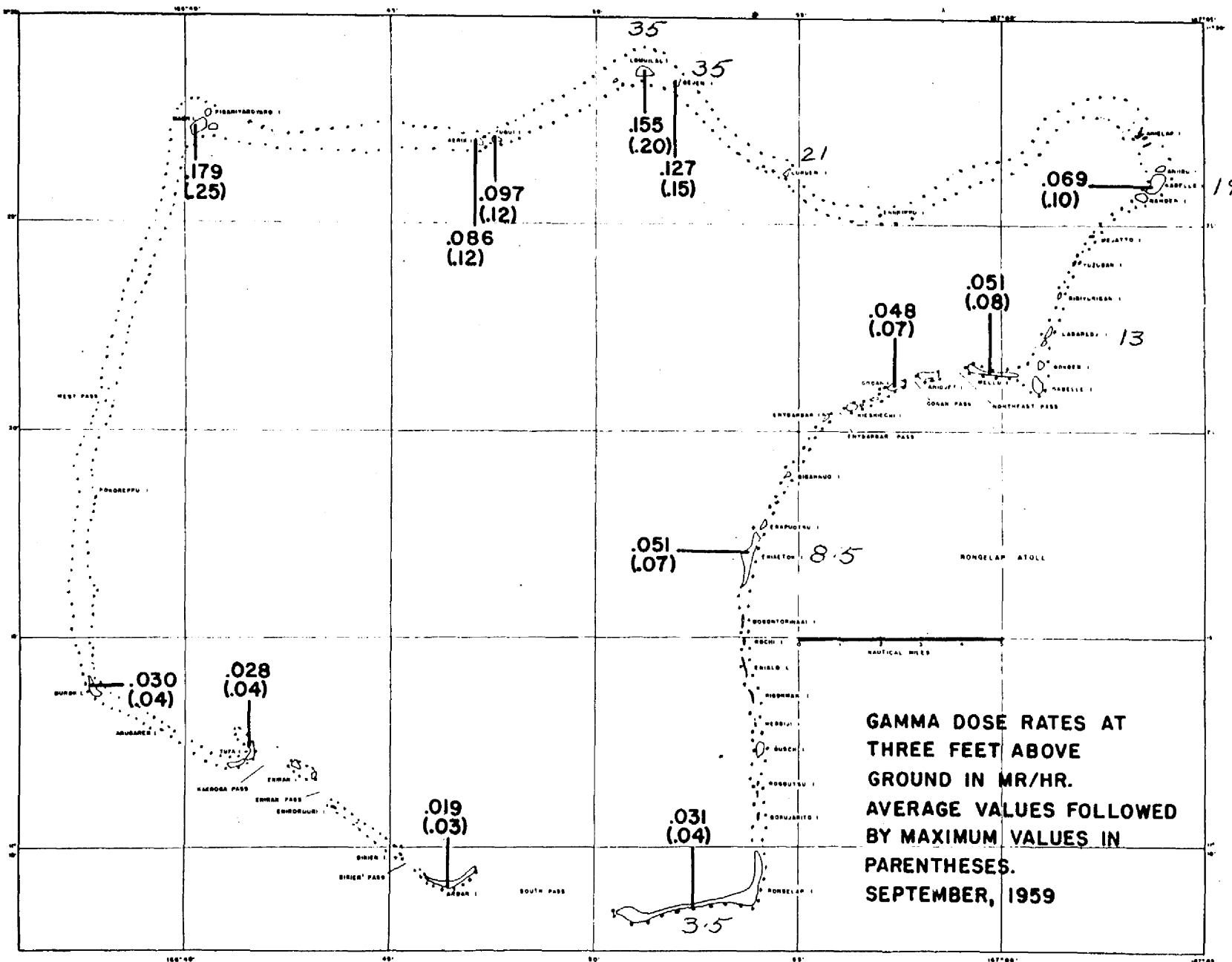
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Radioisotopes in Food Rations Collected at
Rongelap Island, September, 1959.

Sample number	<u>Co⁶⁰</u>		<u>Zn⁶⁵</u>		<u>Mn⁵⁴</u>		<u>Cs¹³⁷</u>		<u>Sr⁹⁰</u>	
	d/m/g	95% counting error	d/m/g	95% counting error	d/m/g	95% counting error	d/m/g	95% counting error	d/m/g	95% counting error
1	0.35	0.12	0.40	0.29	-0.04	0.09	61.4	0.60	0.84	0.07
2	0.52	0.25	-1.03	0.53	0.11	0.20	14.1	0.50	1.63	0.16
3	0.12	0.52	-2.40	1.0	-0.49	0.39	21.1	0.87	1.25	0.25
4	0.23	0.13	-0.76	0.28	-0.07	0.10	17.6	0.38	0.43	0.06
5	0.43	0.22	-0.67	0.45	-0.11	0.16	3.6	0.28	0.21	0.09
6	0.90	0.13	1.70	0.30	-0.23	0.09	16.1	0.29	0.66	0.06
7	0.56	0.14	0.87	0.35	-0.19	0.10	20.0	0.38	0.86	0.08
8	1.20	0.15	2.50	0.41	-0.21	0.11	3.0	0.17	0.22	0.05
9	0.33	0.16	0.05	0.36	-0.003	0.13	2.6	0.21	0.32	0.08

5002220





*Gamma Dose Rates
D+1 2 March, 1954
R/HR*

5002221

5002222

BREADFRUIT (ARTOCARPUS SPECIES)

Collected at Rongelap Island

September 1959

Sample number	Tissue	d/m/g dry							
		<u>K⁴⁰</u>		<u>Mn⁵⁴</u>		<u>Zn⁶⁵</u>		<u>Cs¹³⁷</u>	
		95% counting error	95% counting error	95% counting error	95% counting error	95% counting error	95% counting error	95% counting error	95% counting error
VA-ART-1	Edible portion	16	4	*		*		59	0.93
VA-ART-2	"	19	3	*		*		44	0.53
VA-ART-3	"	19	9	*		0.17	0.12	64	2.0
VA-ART-1	Skin	59	15	*		*		129	3.0
VA-ART-2	"	49	12	*		0.16	0.14	82	2.0
VA-ART-3	"	25	12	0.86	0.57	*		84	2.0
VA-ART-1	Terminal Leaves	60	24	*		*		97	3.0
VA-ART-2	"	42	19	*		0.29	0.23	102	3.0
VA-ART-3	"	53	33	*		*		58	3.0
VA-ART-1	Basal Leaves	18	9	0.88	0.42	*		24	1.0
VA-ART-2	"	29	18	*		*		43	2.0
VA-ART-3	"	22	13	0.85	0.68	*		52	2.0

* 95% counting error equal to or greater than background.

Pandanus Fruit and Coconut Crabs

Pandanus fruit and coconut crabs (Birgus latro) were the two food items of major concern with respect to Sr^{90} content at the time of the return of the Rongelapese. (Dunning, Radioactive Contamination of Certain Areas in the Pacific Ocean from Nuclear Tests, 1957, USAEC). These have therefore been the subject of special study.

There is no indication that the Sr^{90} levels have changed significantly between 1955 and 1959 in either Pandanus or Birgus.

About 30% of the total radioactivity in Pandanus fruit is due primarily to Cs^{137} with traces of Zn^{65} . Traces of Ce^{144} are found in the leaves but none in the fruit.

No significant seasonal trends have been noted although there is greater variation in Cs^{137} and potassium levels in Pandanus in the dry than in the wet season.

See also UWFL-59, UWFL-64

Strontium-90 and total calcium in Pandanus Leaves, Rongelap Atoll

		No. of samples	Sr ⁹⁰ d/m/g dried	Ca mg/g dried
Rongelap Island				
March	58	4	56 [±] 11	13.3 [±] 1.2
August	58	4	71 [±] 14	13.2 [±] 3.0
March	59	5	44 [±] 34	14.7 [±] 3.4
September	59	15	34 [±] 13	14.3 [±] 2.4
Kabelle Island				
March	58	2	101 [±] 76	18.7 [±] 6.0
August	58	1	74 [±] 4	11.7
March	59	0	no sample	no sample
September	59	1	58 [±] 3	14.9 [±] 0.2
Eniaetok Island				
March	58	2	84 [±] 22	16.4 [±] 4.2
August	58	2	73 [±] 18	16.5 [±] 0.4
March	59	0	no sample	no sample
September	59	2	62 [±] 21	14.9 [±] 0.1

When there is only one sample, the error given is derived from counting error.

When there is more than one sample, the value given is the average and the error given is standard deviation.

5002223

SQUASH (CUCURBITA SPECIES)
Collected at Rongelap Atoll
September 1959

Sample number	Tissue	d/m/g dry							
		K^{40}		Mn^{54}		Zn^{65}		Cs^{137}	
		95% counting error	95% counting error	95% counting error	95% counting error	95% counting error	95% counting error	95% counting error	95% counting error
<u>Rongelap Island</u>									
VA-Cuc-1	Edible portion	136	35	3	2	*		651	12
VA-Cuc-2	"								
VA-Cuc-3	"								
VA-Cuc-1	Skin	248	63	*		*		1,283	17
VA-Cuc-2	"	116	28	*		0.48	0.32	529	7
VA-Cuc-3	"	102	18	*		0.42	0.23	261	4
VA-Cuc-1	Terminal Leaves	198	51	3	2	*		341	8
VA-Cuc-2	"	270	62	*		*		584	11
VA-Cuc-3	"	245	56	*		1.32	0.66	170	6
VA-Cuc-1	Basal Leaves	35	28	*		*		243	5
VA-Cuc-2	"	238	45	*		*		563	9
VA-Cuc-3	"	135	25	2	1	*		163	4
VA-Cuc-1	Seeds	60	18	1	0.83	*		148	3
VA-Cuc-2	"	79	21	0.97	0.86	*		81	2
VA-Cuc-3	"	69	17	2	0.80	0.33	0.20	44	2
<u>Eniaetok Island</u>									
ENI-Cuc	Edible portion	139	18	0.42	0.24	1.31	0.82	215	3
ENI-Cuc	Skin	1,054	211	*		*		751	21
ENI-Cuc	Terminal Leaves	139	10	1.0	0.17	3	0.47	702	3
ENI-Cuc	Basal Leaves	67	16	0.74	0.21	0.73	0.65	413	4

* 95% counting error equal to or greater than background.

Strontium-90 and total calcium in Pandanus Fruit, Rongelap Atoll

		No. of samples	Sr ⁹⁰ d/m/g dried	Ca mg/g dried
Rongelap Island				
March	58	1	28	2.4
August	58	1	4.6 [±] 0.4	4.1
March	59	5	19.0 [±] 13.2	5.3 [±] 2.8
September	59	4	16.0 [±] 8.2	6.8 [±] 3.0
Kabelle Island				
March	58	1	37	3.0
August	58	1	13.±0.1	4.0
March	59	0	no sample	no sample
September	59	0	no sample	no sample
Eniaetok Island				
March	58	2	20 ±3	3.7 [±] 0.8
August	58	1	13 ±0.1	5.0
March	59	0	no sample	no sample
September	59	2	18 ±2	4.1 [±] 0.7

When there is only one sample, the error given is derived from counting error.

When there is more than one sample, the value given is the average and the error given is standard deviation.

Cesium-137 and total potassium in Pandanus Fruit, Rongelap Atoll

		No. of samples	Cs ¹³⁷ d/m/g dried	K mg/g dried
Rongelap Island				
March	58	1	787	18.2
August	58	1	192	8.7
March	59	5	217 [±] 126	12.2 [±] 7.8
September	59	4	444 [±] 145	12.4 [±] 7.8
Kabelle Island				
March	58	1	991	19.4
August	58	1	387	4.5
March	59	0	no sample	no sample
September	59	0	no sample	no sample
Eniaetok Island				
March	58	2	592 [±] 412	15.6 [±] 1.0
August	58	1	284	10.1
March	59	0	no sample	no sample
September	59	2	610 [±] 180	13.4 [±] 2.2

The errors given are standard deviations.

Cesium-137 and total potassium in Pandanus Leaves, Rongelap Atoll

		No. of samples	Cs ¹³⁷ d/m/g dried	K mg/g dried
Rongelap Island				
March	58	4	244±100	9.9±1.2
August	58	4	364±19	11.6±2.3
March	59	5	48±24	4.7±3.2
September	59	15	198±76	10.3±5.0
Kabelle Island				
March	58	2	842±486	22.0±7.4
August	58	1	464	15.0
March	59	0	no sample	no sample
September	59	1	370	8.3
Eniaetok Island				
March	58	2	283±107	9.6±1.9
August	58	2	121±7	8.4±1.0
March	59	0	no sample	no sample
September	59	2	214±20	6.8±2.1

The errors given are standard deviations.