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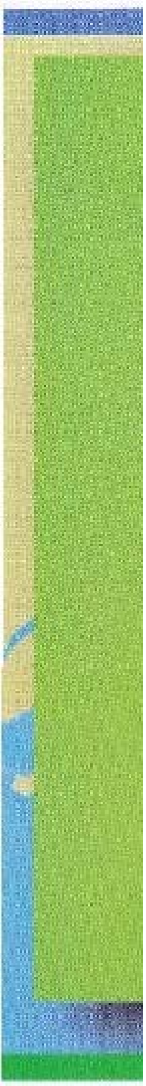

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FSC 15 1 7 2017
DOI 10.15027/44128

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[2] 800-0232

Density of juvenile of tri-spine horseshoe crab *Tachypleus tridentatus* in the Sone Estuary, Kitakyushu, Japan, with notes on sediment particle sizes in habitats and breeding areas

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Osamu Hayashi[2], Shogo Takahashi[2] and Susumu Ohtsuka[1]

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[2]The Horseshoe Crab Preservation Society of Japan, Fukuoka Branch, Kusami-Higashi, Kokura-minami-ku,
Kitakyushu, Fukuoka 800-0232, Japan

2016 7 16 18

8.0 52.0 mm (N = 68)

875 /ha

55

215.0 377.0 mm 40 56 4

7

0.77 2.58 mm

2017 8 21 2017 9 20 * e-mail m171785@hiroshima-u.ac.jp

Abstract

The density and composition of developmental stages of juveniles of the tri-spine horseshoe crab *Tachypleus tridentatus* .R 27 7 /
investigated at the Sone tidal flat, Fukuoka Prefecture during 16 to 18 July, 2016. The sizes and sexes of dead adults beached on the shore were also examined. The carapace width of juveniles collected at the mouth of the Nuki River ranged from 8.0 to 52.0 mm (N=68). The density of juveniles was about 875 indiv./ha, with the density decreasing in the offshore direction. However, mean diameters of sedimentary particles did not differ considerably among five line transects set up from the inshore to offshore. The carapace width of beached dead adults ranged from 215.0 to 377.0 mm (N=55) with sex proportions of 40% male, 56% female, and 4% unidentified. Some dead adults bore a broken tail spine or contained eggs in the bodies. Mean sizes of sedimentary particles at the seven breeding areas located along the inner part of the flat ranged 0.77 to 2.58 mm, and tended to be more coarse than at other breeding areas in Japan.

Key words: tri-spined horseshoe crab, density, Sone tidal flat, sediment, mean diameter of sedimentary particles, juvenile

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Tachypleus tridentatus (Leach, 1819) 517 ha
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(, (, 1993, , 2015)
1984) 1920 1930 4
(, 2015)

(
, 2012, , 2017) (
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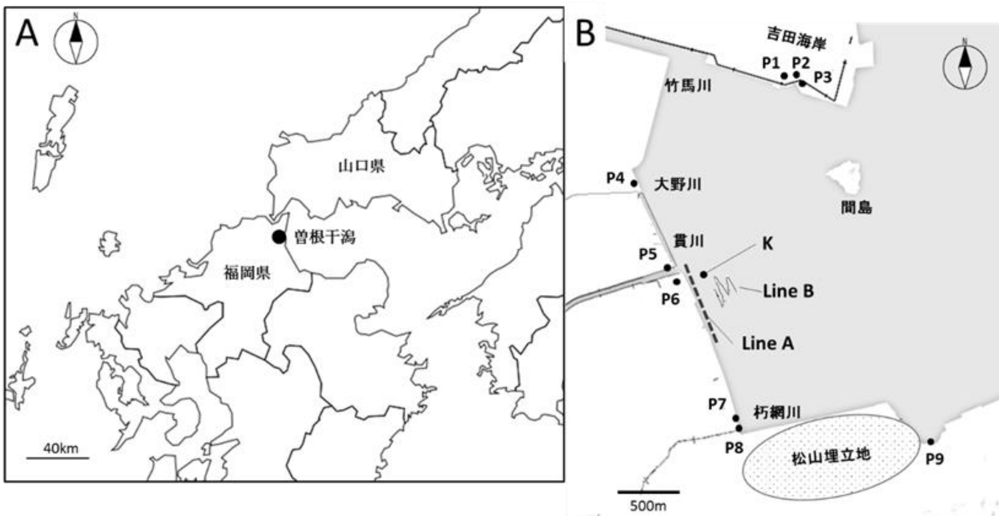

1. (A. ; B.). P1 9 ; Line A
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(, 2015) (2015)

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120 2001 2005

2005

1,581 2006 2007

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(1, K) 68

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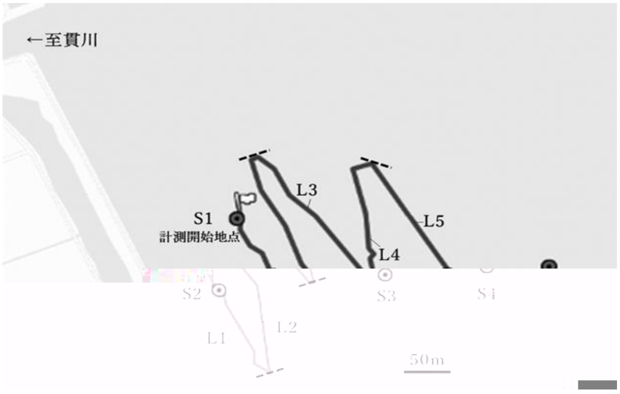

2. (Line B)

(L1 L5) (S1 S4)

2016 7 17 (9:00 11:00)

(20 cm

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P1 P3) 1 (1, P4)

2 (1, P5, P6)

2 (1, P7, P8) 1 (

1, P9) 2016 7 18

(12:00 13:00)

4 (2, S1 4)

5 cm

(FS-405,

Advantec, Inc.) 120 C 3

(4.000, 2.000, 1.000, 0.500, 0.250,

0.125 mm)

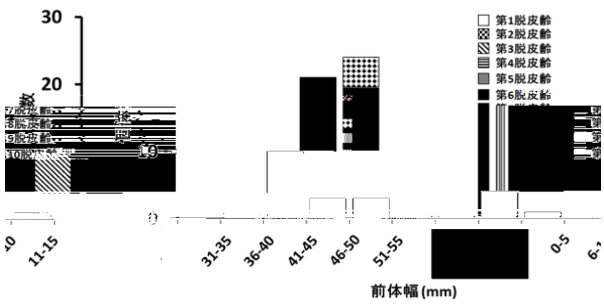
2016 7 16 (12:00 14:00)
2 km (1, Line A)
(3) 55

3. .

8.0 52.0 mm (N = 68) (1984) 7 (4)

(, 2015)

(2007, 2008) 2006 8 9.5 61.6 mm 2007 8 13.4 61.6 mm (2015) 1999 2013 4 6 8.0 104.0 mm



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9,440 m^2 826 (875 /ha = 8.8 /a) (1)

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(, 2001)

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L1

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1, 2

調査区分	幼体個体数	第4脱皮齢以下個体数	第5脱皮齢個体数	第6脱皮齢以上個体数	調査距離(m)	調査面積(m²)	平均密度
L1	408	57	329	22	390	3120	13.08
L2	284	37	244	3	285	2280	12.46
L3	106	9	96	1	199	1592	6.66
L4	16	2	12	2	169	1352	1.18
L5	12	4	6	2	137	1096	1.09
全体	826	109	687	30	1,180	9,440	[illegible]

L5

(2)

(2001)

(, 2015)

S1 0.093 mm S2 0.094 mm

S3 0.098 mm S4 0.099 mm

(2, 5, 2)

(2014) 1995 2013

0.067

mm

0.15 0.27

mm (, 2017) 0.08

0.22 (± 0.13 ± 0.04) mm (,

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0.10 0.80 (0.43 ± 0.26) mm

(, 2001)

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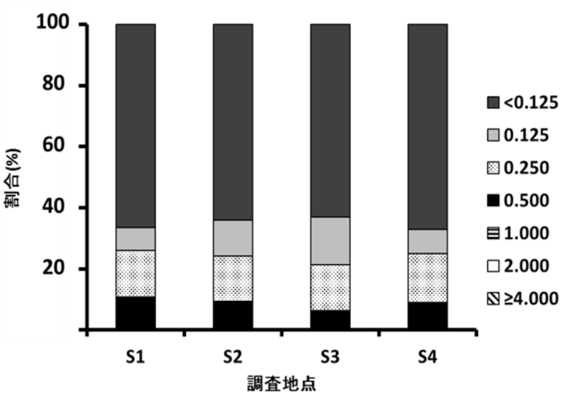
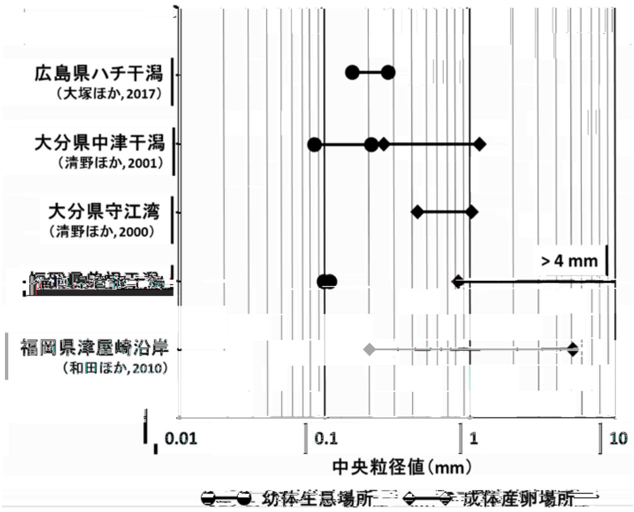


5. (S1 4) . 2

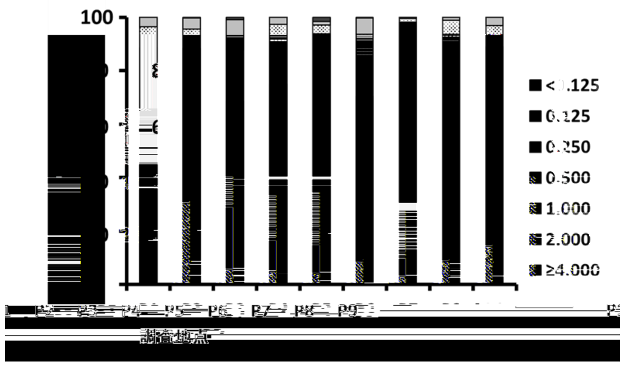
2.

(A) (B). S1 4, P1 9 1, 2

底質採取地点	中央粒径値(mm)



6.



7. (P1 9) . 1

0.30 mm) (2017)
(6) 1
13 14
(7) P1
P2 P3 0.77 mm 1.33 mm 2.58 mm (,
P4 0.81 mm P5 P6 2.06 2017) 56%
mm, 0.74 mm P7 P8 2.05 mm 40% 4%
1.80 mm P9 4 mm (8) (2017)
(1, 2) (2000) : 1:1.27

0.42 0.97 mm 0.7 mm 2016

0.25 1.10 mm
(, 2001) (, 2016, , 2017)
0.20
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(6)

215.0 377.0 mm 28 29
251.0 290.0 mm (8)

(3) (2017)
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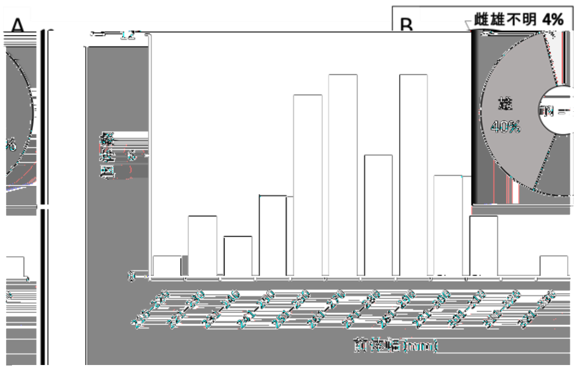

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FSC 15 8 12 2017
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[1)*] [2)] [1)] [1)] [1)] [1)] [1)] [1)]
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739-8528 1-4-4

A preliminary proposal of policy for dairy herd health management from the viewpoints of culling in the Hiroshima University Farm

Yuzo Kurokawa[1)*], Hisashi Mori[2)], Miki Okita[1)], Hirokazu Kubota[1)], Hidekazu Yamashiro[1)], Yoshimasa Tsumiyama[1)], Ichiro Chikamatsu[1)], Teppei Yamaguchi[1)],Shinji Kihara[1)], Akiyoshi Tanaka[1)], Ryohei Waki[1)], Aki Kitamura[1)], Shinji Kawaguchi[1)] and Taketo Obitsu[1)]

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[2)] School of Applied Biological Science, Hiroshima University
1-4-4 Kagamiyama,Higashihiroshima,Hiroshima 739-8528,Japan

要旨

3.4
2000 2015
20 25 2011 3
1 2 24 83
67 16
6 4 5 40% 6
77.8%
6

2017 8 1 e-mail yuzokuro@hiroshima-u.ac.jp

Abstract

In Japan, mean value for parity of dairy cows at culling has decreased to 3.4; measures to improve this are required. The aim of the present study is to understand the trends of culling of dairy cows at the Hiroshima University Farm. For that purpose, the farm's records for dairy cow culling during the period of 2000–2015 were analyzed. At the farm, 20–27 dairy cows are regularly being milked. In March 2011, the milking system at the farm was changed from a milking parlor system to an automatic milking system. During the 16 years analyzed, 67 cows sold for meat and 16 cows that died at the farm totaled to 83 culled cows. The proportion of culled cows for each parity to total culled cows increased with increasing parity, and the number of cows culled at their 6th parity was the highest. The proportion of culled cows to cows that delivered at each parity gradually increased to more than 40% at the 5th parity, and drastically increased to more than 77.8% at the 6th parity. The reasons for culling were reproductive difficulty and diseases, such as mastitis. Therefore, general measures for improving reproductive performance and disease prevention should be taken for the cows at the 4th or lower parity. In addition, for dairy cows at the 5th or higher parity, a diagnostic decision on whether they are artificially inseminated for further delivery or not might be required depending on the individual cow's record of reproduction and diseases.

Key words: culling, dairy cows, disease, parity, reproduction

緒言

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2011 3

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1 2 9:00 16:00

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結果および考察

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237 83 67

16 83

(

, %)

1 9.5% 2

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4.1 (2015

22 14.1 27

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(1)

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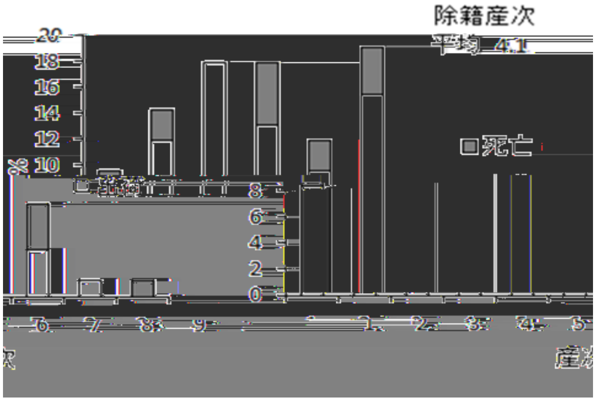

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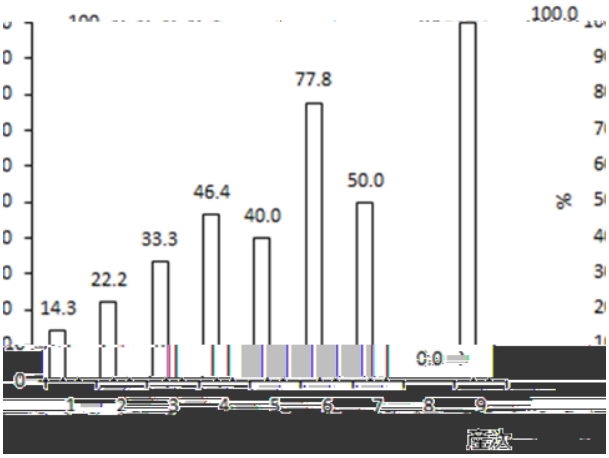

2. 2000 2015

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					, %			kg/	
									/²
1	1.9	0.8	0.0	0.4	3.6	0.0	25.7	21.0	10.3
2	2.2	2.7	1.0	0.6	4.1	9.5	30.0	22.4	23.5
3	1.9	1.1	-	1.3	4.1	-	31.3	27.0	-
4	2.4	0.8	0.3	0.7	1.6	6.6	29.6	25.3	23.2
5	2.3	0.9	1.5	2.2	3.4	27.1	28.9	25.6	15.6
6	1.8	1.1	0.0	0.2	1.0	5.4	30.7	27.5	14.3
7	2.5	1.0	0.0	1.3	1.9	3.7	25.9	29.2	4.3
8	2.0	0.0	-	0.0	2.9	-	30.1	23.2	-
9	-	-	0.0	-	-	10.0	-	-	24.3
	2.1	1.2	0.4	0.8	2.9	8.6	28.8	25.5	16.3

63

%

2 14.3% 4

5 40%

6 77.8% 25kg

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60% 50

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引用文献

Green M., Green L., Huxley J., Statham J., Statham S. (2012): Concept in dairy health In Dairy herd health Green M. (ed.) CABI Oxfordshire, 1–9pp.

Shahid M. Q., Reneau J. K., Chester-Jones H., Chebel R. C., Endres M. I. (2015): Cow- and herd-level risk factors for on-farm mortality in Midwest US dairy herds. Journal of Dairy Science, 98: 4401–4413.

(2015): 4 pp. 29–32.

http://liaj.lin.gr.jp/japanese/newmilkset.html. 2017 7

FSC 15 13 - 19 2017
DOI 10.15027/44130

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Study on the foundation of “the Country Farm” focused on children’s field education at a local community

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M-GTA

2017 7 31 * e-mail htanida@hiroshima-u.ac.jp

Abstract

This study investigated the process of the foundation of “the Country Farm,” a educational facility that is focused on children’s agricultural field education at a local community. The study discussed not only the significance of the farm for local residents but also problems at issue for the foundation of the farm. We interviewed the farm’s employees and locals about “the Country Farm” and analyzed the data with M-GTA. The results showed that employees’ perception of the farm varied. On one hand, the local residents’ perception of the farm was mostly negative, especially on points such as the management of animals raised at the farm, sanitation related to keeping the animals, and children’s safety during educational activities. These results suggest that the farm should actively keep local residents informed so as to become a local center for the field education of children.

Key words: children’s field education, educational farm, local contribution

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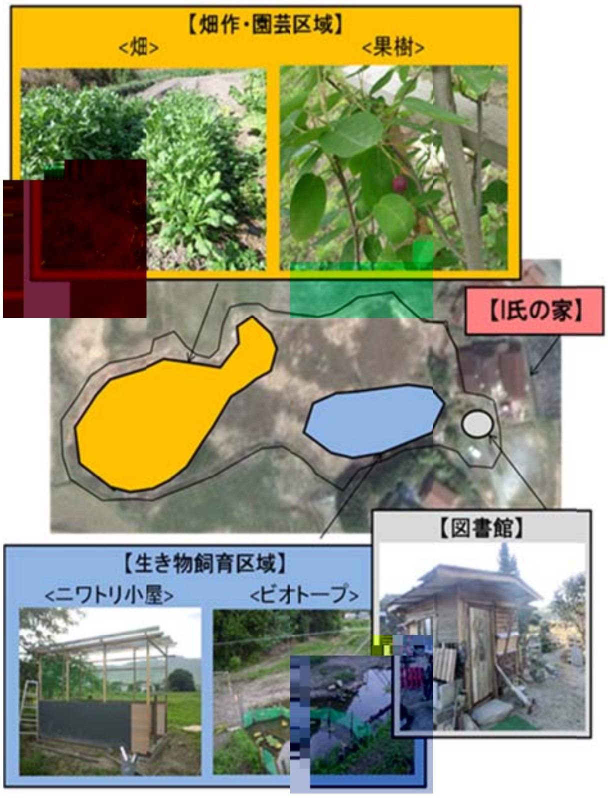

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果実	野菜	薬草
キウイ	ウリ	アップルミント
グズベリー	オクラ(2種)	ウコン
クワの実	カボチャ(2種)	カリン
サクランボ(2種)	キュウリ	スペアミント
ジューンベリー	ジャガイモ(2種)	ゼンマイ
スイカ(2種)	チョロキア	タラの木
スグリ	チリトウガラシ	バジル
ヒメイチジク	トウモロコシ	パイナップルミント
ブルーベリー(4種)	トマト(3種)	ミツバアケビ
ボッブベリー	ナス(3種)	モクレン
	ハバネロ	ヤマイモ
	パプリカ	ヤマウド
	ミョウガ	ヤマユリ
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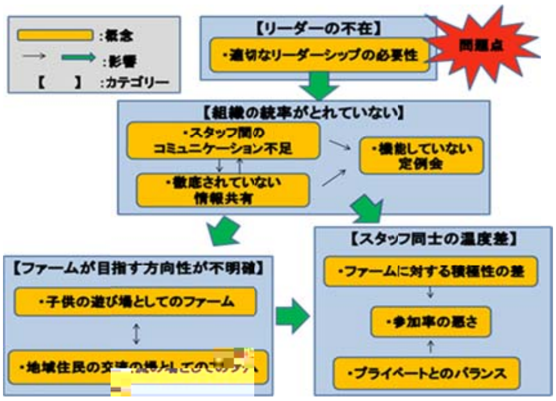

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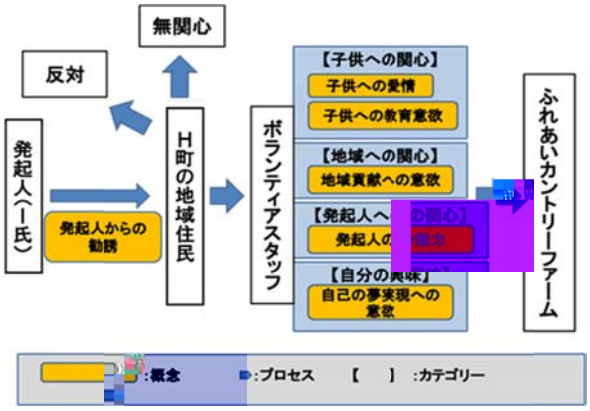

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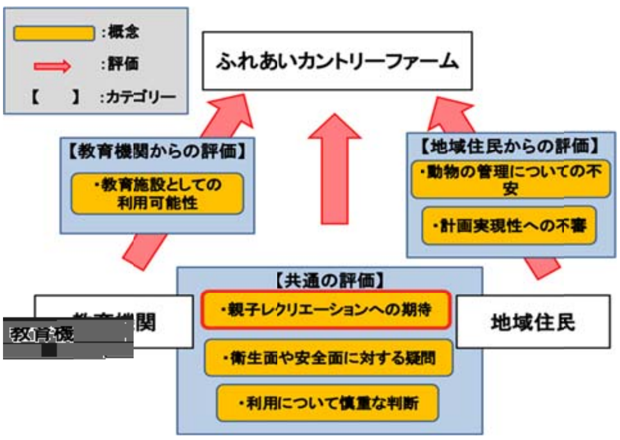

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http://www.mhlw.go.jp/houdou/2003/01/h0129-2.html. 2017 7 28

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http://www.mext.go.jp/component/b_menu/shingi/toushin/__icsFiles/afieldfile/2011/02/01/1301878_1_1.pdf. 2017 7 28

2014

http://manabi-mirai.mext.go.jp/houkago/propulsion.html. 2017 7 28

2017

http://www.mext.go.jp/a_menu/shotou/new-cs/index.htm. 2017 7 28

2017

http://www.mext.go.jp/a_menu/sports/ikusei/taiken.htm. 2017 7 28

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http://www.mext.go.jp/b_menu/shingi/chuuou/toushin/960701.htm. 2017 7 28

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http://survey.gov-online.go.jp/h22/h22-doubutu/index.html. 2017 7 28

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20: 109-124.

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1) 2) 2)

1) 739-8524 1-1-1

2) 739-8528 1-4-4

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1-4-4 Kagamiyama,Higashihiroshima,Hiroshima 739-8528,Japan

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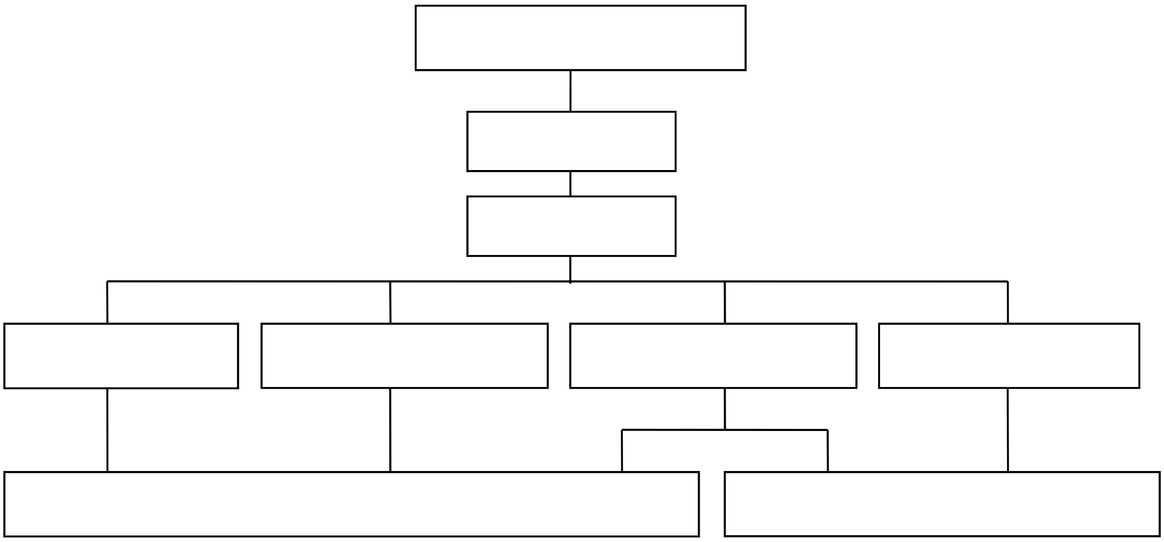

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(082)424-7111 4070
(082)424-7111 4165

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(0846)24-6780 FAX (0846)23-0038
http://fishlab.hiroshima-u.ac.jp

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TRAN Dang Xuan

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	38,492,000
	1,025,000
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(2)

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	3,092,117	6,260,187	4,432,737	4,068,900	5,945,131
( )	9	14	9	7	8
	1,261,169	1,552,538	3,296,087	1,868,199	1,539,857
( )	13	7	18	10	10
	1,680,115	3,391,023	2,230,344	1,806,794	1,557,657
( )	12	12	8	7	7
	6,033,401	11,204,087	9,959,168	7,743,893	9,042,645
( )	34	33	35	24	25
	33,600	40,000		95,040	
( )	4	5		11	
	24,575,038	19,509,043	24,669,250	23,162,262	23,950,297
(kg)	252,641	199,952	238,864	217,015	224,368
	30,642,039	30,754,755	34,628,418	31,001,195	32,992,942

(1)

28 1-1 3

27

28 13

27 2 5

28 27 8 22

12

(2)

28 1-2 20.9 27

224,368.1kg 1,339kg

3.94% 27

245,000 27 SA

1-3 28 TMR 293t

46t 27 TMR 32t 4t

1-4 28 305

2.1 423.5 14,146.4kg 305

10,380.8kg 27 305

(3)

28 1-5 28 25

27 7 23 15

28 2.7 3.2 27

90 1 7

5

(4)

28 1-6 28 12

3.1 1.8 27

3 3 27 1

5

5

90 120 5

(5)

28 1-7 1-8 F1 25

28 1

F1

(6)

28 1-9

2 2

1-1 28

	*						28	
			H25.4.1	H26.4.1	H27.4.1	H28.4.1	*2	
			28	31	29	21		
			13	7	11	19	H♀13	
			0	0	0	0	H♂ 9	
			0	0	0	0	F_1♀ 1	
			0	0	0	0	F_1♂ 2	
			41	38	40	40	JB♀ 7	
F_1 F_1			17	14	10	12	JB♂ 5	
			5	3	7	7		
			7	6	5	0		
			37	28	23	25		
			78	63	65	37	0	

18 18 *2

1-2 28 (:)

		(kg)					(kg)						
4	19.6	18154.5	18148.5	0.0	0.0	6.0	14.5	0.0	14.5	3.89	3.33	8.84	144.00
5	19.8	17765.6	17699.4	66.2	0.0	0.0	127.5	26.2	101.3	3.74	3.35	8.82	166.33
6	18.4	17080.6	16729.6	351.0	0.0	0.0	107.4	27.0	80.4	3.74	3.31	8.84	153.33
7	19.5	18323.0	17967.5	355.5	0.0	0.0	232. 7	43.5	189.2	3.88	3.25	8.74	115.00
8	21.4	18103.6	17692.1	411.5	0.0	0.0	278.2	98.0	180.2	3.89	3.21	8.69	330.67
9	21.4	18232.4	17505.9	726.5	0.0	0.0	94.5	20.0	74.5	3.67	3.29	8.79	194.67
10	22.8	20135.0	19233.0	902.0	0.0	0.0	360.2	108.8	251.4	3.90	3.25	8.74	178.00
11	23.1	21439.0	20911.0	528.0	0.0	0.0	0.0	0.0	0.0	3.93	3.28	8.79	198.00
12	19.8	19415.2	19353.7	61.5	0.0	0.0	66.8	21.2	45.6	4.01	3.32	8.82	310.00
1	20.1	17373.4	16875.2	498.2	0.0	0.0	420.2	44.9	375.3	4.30	3.36	8.82	446.00
2	20.9	19535.8	18649.5	886.3	0.0	0.0	192.5	58.3	134.2	4.19	3.30	8.85	310.67
3	23.7	24515.4	23602.7	912.7	0.0	0.0	334.4	105.5	228.9	4.18	3.26	8.78	398.67
	20.9	230073.5	224368.1	5699.4	0.0	6.0	2228.9	553.4	1675.5	3.94	3.29	8.79	245.44

1-3 28 (kg)

NO																	
1	H0954-	14/06/25					81.9	1056.2	1136.6	1221.0	1261.3	1220.3	1273.0	1252.0	8502.3	9,408.0	1584.8
2	H0933- -	13/10/25	1171.3	1249.0	1180.1	1087.6	955.4	883.8	832.1	804.7	522.9	0.0	339.9	1643.8	10670.6	11,009.0	1911.3
3	H0883- -	12/03/01	1501.7	1166.4	1302.3	1303.1	1066.6	1207.7	1232.0	1222.6	1196.8	656.3	0.0	528.4	12383.9	14,156.0	2051.0
4	H0936-	13/11/06	1052.0	1090.0	1013.4	973.7	900.3	800.1	654.8	655.7	643.0	338.2	0	0	8121.2	9,854.0	1715.8
5	H0965-	14/10/10						762.2	899.0	1011.9	1025.2	937.9	880.5	929.2	6445.9	7,987.0	1330.4
6	H0889- -	12/04/21	802.2	637.6	727.4	705.2	549.9	6.1	381.0	1482.2	1641.6	1446.1	1267	1392.5	11038.8	13,359.0	1744.9
7	8891- -	08/11/23	0.0	0.0	0.0	943.7	1376.1	1321.0	1354.6	1313.1	1291.9	1149.0	1048	1097.9	10895.3	11,098.0	1557.0
8	H0901- -	12/10/11	1361.3	1409.8	1289.2	1341.9	1236.1	1151.0	1064.3	880.1	758.6	338.6	0	433.0	11263.9	12,758.0	2017.8
9	H0966- -	14/10/11						432.7	1093.5	814.2					2340.4	2,519.0	451.0
10	H4989- -	10/11/22	1022.6	831.4	359.3	0.0	760.9	1501.2	1541.5	1555.3	1538.7	1482.1	1364.3	1424.5	13381.8	13,921.0	2140.5
11	H8327-	11/03/20	601.9	569.1											1171.0	1,993.0	244.0
11	H0959-	14/07/17				653.6	1132.5	1001.8	938.0	926.3	938.5	857.0	923.1	943.1	8313.9	9,589.0	1603.3
12	5866-	09/08/27	881.6	798.1	732.9	707.2	644.5	590.9	487.2	194.9	0.0	671.4	1447.8	1517.3	8673.8	10,635.0	1183.8
13	0915-	13/01/04	1122.5	1211.8	1118.7	1110.4	1018.5	1011.1	1013.3	933.0	602.4	0.0	687.7	1293.7	11123.1	11,530.0	2003.4
14	H0879- - 2	12/02/04	825.0	768.6	641.3	532.7	413.0	61.3	0.0	0.0	66.8	814.7	1303.3	1482	6908.7	9,506.0	954.6
15	H0946- - -	10/10/29	1212.9	1355.7	1240.8	1228.8	1032.4	1006.7	843.2	802.6	836.7	768.4	649.4	674.6	11652.2	15,565.0	2102.5
16	H0899- - - - -	12/10/04	1223.5	1157.0	913.2	806.0	686.9	566.4	99.3	0.0	0.0	86.0	1177.9	1395.3	8111.5	9,926.0	1593.9
17	H0905- -	12/11/04	993.5	988.8	784.8	742.3	640.5	604.8	481.7	368.0	0.0	0.0	0	748.5	6352.9	7,693.0	978.5
18	H0868- -	11/11/01	1596.8	1564.0	1394.5	1195.3	1098.9	1156.6	1118.0	1074.4	974.6	845.3	804.8	772.9	13596.1	14,760.0	2557.7
19	0906-	12/11/05	255.8	0.0	788.3	1562.4	1470.7	1393.8	1416.6	1320.4	1396.8	1328.1	1222.4	1227.5	13382.8	13,876.0	2244.2
20	H0896- - 2	12/07/14	299.2	75.6	0.0	0.0	0.0	0.0	901.8	1137.4	928.3	585.6	320.2		4248.1	5,214.0	1079.6
21	H0953-	14/06/11							677.9	1004.1	1048.6	1045.1	973	1027.6	5776.3	6,934.0	1125.1
22	H0972-	14/11/11							366.2	913.3	965.3	980.7	896.2	981	5102.7	5,565.0	1152.2
23	1475-	08/08/30	0.0	497.9	1305.7	1384.9	1342.6	1326.5	596.2						6453.8	7,773.5	709.5
24	H0893- - - - -	12/06/08	1346.9	1363.9	1162.4	997.9	685.7	927.2	920.2	894.5	901.1	776.4	710.5	737.7	11424.4	13,101.0	2652.9
25	H0960-	14/07/29							64.9	867.9	1081.0	1086.3	1102.7	1186.9	5389.7	5,794.0	1011.9
26	H0894- -	12/06/30	1135.2	970.1	0.0	0.0	128.4								2233.7	3,948.0	498.7
27	0803- -	09/11/10	1395.1	1361.1	1236.8	1249.5	1165.3	1104.7	847.8	398.0	0.0	241.1	1237.1	1786.9	12023.4	13,415.0	2046.0
28	H0981- -	15/02/25												705	705.0	846.0	168.0
29	H0860- -	11/08/02	14.5	844.7	1060.0	1088.7	1021.5	1011.4	1024.3	1109.0	1271.7	1196.2	905.5	808.4	11355.9	11,886.0	2175.1
30	H0862-	11/08/23	670.9	645.0	609.7	587.1	501.7	276.6							3291.0	4,798.0	763.9
30	H0980-	15/01/31										705.1	876.9	865.7	2447.7	2912.0	463.3
			20486.4	20555.6	18860.8	20202.0	19910.3	21161.8	21986.0	22904.6	20891.8	19555.9	21411.2	26855.4	254781.8	293328.5	45816.4

1-4 28 305 (L)

N0.							305	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17 19	18	19	20	21	
19	H0906	12/11/05	1	14/11/11	16/04/14	520	10273.6	791.3	1077.5	1119.1	1084.4	1088.9	1065.1	1016.7	987.6	944.6	940.9	952.2	925.3	675.0	858.7	869.2	851.0	803.6	197.7				16248.8
20	H0896 2	12/07/14	2	15/11/02	16/05/11	191	3721.7	751.8	985.9	758.7	491.0	365.5	284.5	84.3															3721.7
10	H4989	10/11/22	3	15/02/25	16/06/20	481	13314.0	1212.2	1603.8	1461.1	1445.1	1393.0	1324.2	1323.3	1290.4	1233.4	1195.2	1270.6	1188.1	1193.5	1100.8	874.7	620.4	22.1					19751.9
6	H0889	12/04/21	1	14/12/18	16/09/01	623	8585.7	697.6	979.7	819.9	827.9	886.8	952.8	963.5	861.5	903.7	795.1	801.6	799.1	837.0	790.0	774.4	783.0	736.9	650.1	718.8	670.4	384.8	16634.6
14	H0879 2	12/02/04	2	15/07/21	16/09/06	413	10477.8	1061.0	1304.4	1195.4	1187.9	1124.1	1112.5	1024.5	937.3	859.4	772.3	705.5	595.1	452.0	703.4								13034.8
16	H0899	12/10/04	2	16/01/07	16/10/13	280	9145.2	1085.0	1477.3	1351.8	1164.9	1128.2	890.3	766.7	659.2	544.1	77.7												9145.2
12	H5866	09/08/27	4	15/07/24	16/11/14	479	10698.6	1103.0	1387.7	1312.9	1136.9	1080.2	1117.1	1030.5	935.5	884.0	816.4	737.5	711.6	665.5	604.9	523.5	446.1						14493.3
17	H0905	12/11/04	2	15/11/01	16/11/28	393	10084.9	997.4	1377.5	1324.7	1284.4	1218.0	1015.9	959.1	789.6	728.0	626.7	620.7	483.9	411.0	44.2								11881.1
27	H0803	09/11/10	4	15/09/30	16/11/28	425	13385.7	1053.0	1476.1	1516.3	1492.8	1447.6	1382.5	1389.2	1340.6	1245.1	1205.5	1151.8	1116.7	931.7	509.6	50.2							17308.7
2	H0933	13/10/25	1	15/11/06	16/12/26	416	10700.8	747.9	1079.6	1076.7	1159.9	1211.8	1164.6	1210.2	1172.2	1047.8	920.7	883.8	803.0	809.4	547.3								13834.9
13	H0915	13/01/04	2	16/02/23	16/12/26	307	9902.2	1005.8	1064.8	1182.2	1144.8	1074.6	1034.7	985.7	976.6	974.2	852.4	113.0											10408.8
4	H0936	13/11/06	1	15/10/31	17/01/20	447	10265.6	938.8	1179.2	1109.1	1088.2	1076.6	1057.1	1051.0	1021.9	945.3	881.1	833.7	636.4	657.3	631.8	477.6							13585.1
8	H0901	12/10/11	2	15/09/11	17/01/20	497	12494.9	1033.1	1301.6	1280.5	1321.7	1314.2	1357.8	1329.9	1371.4	1347.0	1287.6	1302.5	1178.8	1123.0	1025.1	876.3	709.4	299.9					19459.8
3	H0883	12/03/01	2	15/10/27	17/01/26	457	12281.2	816.7	1242.0	1432.9	1384.6	1464.7	1521.3	1175.0	1281.3	1260.9	1097.0	1146.2	1191.7	1226.3	1205.1	995.3	99.8						18540.8
			2.1			423.5	10380.8	949.6	1252.7	1210.1	1158.2	1133.9	1091.5	1022.1	1048.1	993.7	882.2	876.6	875.4	816.5	729.2	680.2	585.0	465.6	423.9	718.8	670.4	384.8	14146.4

FSC 15 38 58 2017

FSC 15 38 58 2017

1-6 28

														(kg)					(kg)		
																		(kg)	7	90 -120	
JB0890-	H24.5.3	H27.3.20	H28.4.11	21:28	3	1	H27.6.24	H27.6.24		JB1014- 180	96	292	388	507.0	454.2	JB		32.1	36.5	108.0	
JB0833-	H22.8.26	H27.5.28	H28.5.24	12:00	4	1	H27.8.4	H27.8.4		JB1016- 181	68	294	362	492.4	442.7	JB		24.5	31.5	111.4	
JB0841-	H22.11.17	H27.4.4	H28.7.28	17:51	5	5	H27.5.26	H27.10.14		JB1020- 182	193	288	481	635.7	589.6	JB		28.4	34.3	120.0	
JB0961-	H26.9.7		H28.9.26	19:30	1	3	H27.10.17	H27.12.21		JB1026- 183		280		433.3	420.0	JB		22.2	26.0	114.1	
JB0964-	H26.10.9		H28.10.6	17:25	1	1	H27.12.25	H27.12.25		JB1029- 184		286		476.2	442.4	JB		22.4	26.6	122.7	
JB0816-	H22.2.25	H27.11.1	H28.11.23	9:20	5	1	H28.2.12	H28.2.12		JB1033- 185	103	285	388	550.1	523.6	JB		29.5	36.9	130.0	
JB0975-	H26.11.23		H28.11.24	21:00	1	1	H28.2.12	H28.2.12		JB1034- 186		286		408.0	408.4	JB		27.2	29.7	117.5	
JB0907-	H24.11.7	H27.10.2	H28.12.6	14:12	3	2	H28.1.12	H28.2.26		JB1035- 187	147	284	431	515.3	483.6	JB		28.2	31.1	129.0	
JB5816-	H21.5.19	H27.8.26	H28.12.17	20:02	5	3	H27.11.3	H28.2.24	3	JB1036- 188	182	297	479	635.1	588.8	JB		34.8	45.4	150.0	
JB0982-	H27.3.9		H28.12.30	23:19	1	1	H28.3.27	H28.3.27		JB1038- 189		278		388.8	329.6	JB		35.8	31.9	154.0	
JB0984-	H27.3.23		H29.1.4	19:00	1	1	H28.4.1	H28.4.1		JB1040- 190		278		446.8	417.7	JB		23.0	26.0	131.0	
JB1449-	H19.11.11	H28.1.10	H29.1.27	8:47	7	1	H28.4.14	H28.4.14		JB1043- 191	95	288	383	742.9	695.2	JB		25.4	32.5	129.2	
28					3.1	1.8					126.3	286.3	416.0	519.3	483.0			27.8	32.4.	126.4	
27					3.5	1.6					86.5	285.5	372.0	541.3	496.8			28.4	35.2	142.9	
26					3.2	1.5					115.9	288.6	404.0	525.4	488.3			30.6	35.7	143.8	
25					3.4	1.3					84.6	287.8	373.0	552.3	514.0			34.5	41.0	148.7	
24					3.3	1.5					132.8	286.5	419.7	535.2	496.9			31.4	35.6	143.1	
23					3.0	1.8					106.0	285.0	393.0	520.2	478.5			34.0	39.4	150.9	

1-7 28

				(kg)						
JB	JB5870-		H21.9.23	31.9	H28.4.7	78.6	550.0	2388	0.22	470,308
HO	11(H8327)-		H23.3.20		H28.6.1	62.5	753.3	1900		190,244
JB	JB0996-	173	H27.10.2	20.5	H28.8.19	10.6	248.0	322	0.71	619,380
JB	JB1001-	174	H27.11.1	32.5	H28.8.19	9.6	305.0	292	0.93	760,968
HO	26(H0894)-		H24.6.30	45.2	H28.8.29	50.0	624.0	1521	0.38	104,829
HO	30(H0862)-		H23.8.23	35.6	H28.9.20	61.0	768.5	1855	0.40	271,783
JB	JB1005-	175	H27.12.14	32.5	H28.10.4	9.7	321.0	295	0.98	835,867
HO	23(H1475)-		H20.8.30	46.9	H28.10.17	97.7	714.6	2970	0.22	172,174
HO	H0993-		H27.9.11	36.3	H28.10.20	13.3	383.0	405	0.86	237,222
HO	H1018-		H28.7.4	43.2	H28.10.20	3.6	142.0	108	0.91	103,616
F1	F1023-		H28.8.28	33.7	H28.10.20	1.7	67.0	53	0.63	228,734
HO	H1027-	2	H28.10.2	32.7	H28.10.27	0.8	56.0	25	0.93	57,662
HO	H1028-	2	H28.10.2	31.6	H28.10.27	0.8	55.0	25	0.94	76,907
JB	JB1010-		H28.2.12	27.7	H28.11.9	8.9	234.0	271	0.76	700,434
JB	JB1011-	178	H28.2.22	30.5	H28.11.9	8.6	256.0	261	0.86	737,370
F1	F1030-		H28.10.8	36.5	H28.11.24	1.5	77.0	47	0.86	305,716
HO	9(H0966)-		H26.10.11	38.4	H28.11.25	25.5	627.0	776	0.76	60,714
HO	H1022-		H28.8.23	40.7	H28.12.21	3.9	165.0	120	1.04	74,747
F1	F1032-		H28.10.27	30.1	H28.12.21	1.8	69.0	55	0.71	254,394
JB	JB1013-	179	H28.3.13	37.7	H28.12.13	9.0	287.0	275	0.91	868,698
HO	H1037-	2	H28.12.28	44.5	H29.2.2	1.2	73.0	36	0.79	90,807
HO	20(H0896)-	2	H24.7.14	43.5	H29.2.23	55.4	894.6	1685	0.51	280,518
JB	JB1014-	180	H28.4.11	32.1	H29.3.10	11.0	309.3	333	0.83	711,720
JB	JB1016-	181								

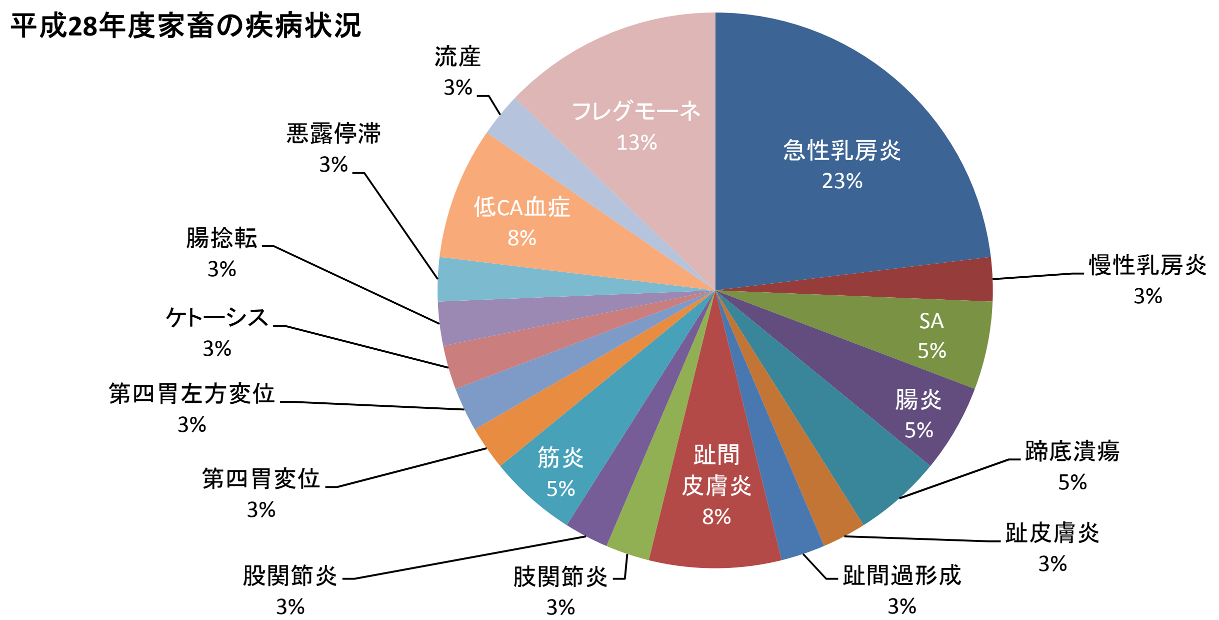
1-8 28

				(kg)	( )
H	♀	6	58.7	730.3	180,044
JB	♀	1	78.6	550.0	470,308
JB	♂	7	9.7	283.4	749,242
JB	♀	1	8.9	234.0	700,434
F_1	♂	2	1.7	73.0	280,055
F_1	♀	1	1.7	67.0	228,734
H	♂	5	2.1	100.4	91,226
H	♀	2	7.1	219.5	147,442

FSC 15 38 58 2017

1-9 28

H	0883- -	♀	H24.3.1		H28.4.30 H28.5.6	6	
					H28.5.9 H28.5.15	7	
H	H0936	♀	H25.11.6		H28.10.18 H28.10.25	2	
H	H0965- -	♀	H26.10.10		H29.1.3 H29.1.7	5	
H	H0889- -	♀	H24.4.21		H28.11.7	∞	
H	H8891- -	♀	H20.11.23		H28.7.14 H28.7.25	10	
					H28.7.23 H28.7.30	7	
H	H0901- -	♀	H24.10.11		H28.4.8 H28.6.3	3	
H	H0966- -	♀	H26.10.11		H28.11.16 H28.11.25	9	
H	H0959-	♀	H26.7.17		H28.10.4 H28.11.11	4	
					H28.12.5 H29.1.18	10	
					H29.1.3 H29.1.6	4	
H	5866-	♀	H21.8.27		H28.7.4 H28.8.17	5	
H	H0879- 2	♀	H24.2.4		H28.11.16 H28.12.26	23	
					H28.12.29 H29.2.18	41	
H	H0946- - -	♀	H22.10.29		H28.4..5 H28.4.13	9	
					H28.7.4 H28.7.27	3	
H	H0899- - - - -	♀	H24.10.4	CA	H29.1.28 H29.2.10	12	
H	H0905- -	♀	H24.11.4	SA	H28.4.8 H28.4.22	8	
					H28.4.23 H28.5.1	9	
					H29.3.11 H29.3.22	11	
H	H0868- -	♀	H23.11.1		H28.11.4 H28.11.19	5	
					H28.12.2 H29.1.29	24	
H	0906-	♀	H24.11.5		H28.7.12 H28.8.3	4	
H	H0896- - 2	♀	H24.7.14	SA	H28.5.1 H28.5.11	4	
H	1475-	♀	H20.8.30	CA	H28.5.17 H28.5.20	4	
					H28.5.19 H28.5.22	4	
					H28.6.16 H28.6.30	13	
					H28.9.8 H28.10.16	39	
H	H0893- - - - - -	♀	H24.6.8		H28.7.9 H28.7.13	5	
					H28.8.5 H28.8.15	11	
					H28.11.2 H29.3.2	12	
H	H0894- -	♀	H24.6.30		H28.5.23 H28.6.1	6	
					H28.5.30 H28.6.14	14	
H	0803- -	♀	H21.11.10	CA	H29.1.23 H29.1.29	7	
H	H0860- -	♀	H23.8.2		H28.4.27 H28.5.7	10	
					H28.9.20 H28.11.2	10	
H	H0862-	♀	H23.8.23		H28.8.5 H28.8.19	11	
					H28.9.11 H28.9.15	5	
H	H0980-	♀	H27.1.31		H29.3.9 H29.3.15	7	



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17.0 2

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29.0

12 5 7

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2-4 2-5 2-6

○

14 2

2 1.0

5.4kg

○

2 3 3 1

1.5kg

○

14 24

1.7 1.9kg

2-1 28

			H28.4.1	H28.10.1	H29.3.31						
			1	1	1	1.0					
			9	13	7	9.7					
			6	3	3	4.0	2	4	6	1	
			5	1	1	2.3					
			21	18	12	17.0					
			1	1	1	1.0					
			2	2	4	2.7					
( )			0	0	0	0.0	3	0	0	0	
			0	2	1	1.0					
			3	5	6	4.7					
			1	1	1	1.0					
			19	20	21	20.0					
( )			3	0	2	1.7	12	7	0	6	
			7	4	8	6.3					
			30	25	32	29.0					

2-2 28

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		4	5	6	7	8	9	10	11	12	1	2	3	
		450	465	450	465	444	420	434	330	248	248	252	310	4,516
		95	124	120	124	124	120	124	120	124	124	84	62	1,345
	1	293	198	220	250	250	240	246	235	195	123	84	93	2,425
		742	612	684	690	608	737	684	546	1,200	961	740	768	8,971

1 GM 69.5 16.0

		4	5	6	7	8	9	10	11	12	1	2	3
		15.0	15.0	15.0	15.0	14.3	14.0	14.0	11.0	8.0	8.0	9.0	10.0
		3.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	2.0
	1	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.3	0.3	0.3
/		1.4	1.0	1.2	1.2	1.1	1.4	1.2	1.2	3.2	2.6	2.2	2.1

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		4	5	6	7	8	9	10	11	12	1	2	3	
		90	93	90	93	93	90	93	90	93	93	84	93	1,095
		0	0	30	62	62	60	62	60	62	62	84	93	637
		12	13	14	19	22	26	27	24	27	27	22	25	258
		72	85	87	116	73	95	114	101	207	189	139	95	1,372

GM 69.5 16.0

		4	5	6	7	8	9	10	11	12	1	2	3
		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
		0.0	0.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
		0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
/		0.8	0.9	0.7	0.7	0.5	0.6	0.7	0.7	1.3	1.2	0.8	0.5

FSC 15 38 58 2017

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1 GM 69.5 16.0

2-3 28

2-4 28 kg

№				5	6	7	8	9	10	11	12	1	2	3
11-53(901)	H23.2.26	♂	127.0	119.0	117.4	117.4	115.2	106.0	103.2	101.8	102.2	108.4	108.4	107.4
12-58(949)	H24.2.3	♀	55.2	83.8	82.2	82.2	83.8	82.4	83.8					
12-60	H24.2.5	♀	65.4	67.8	67.8	67.8	66.0	67.4	72.4					
13-64(904)	H25.2.10	♀	60.0	58.4	60.2	60.2	59.4	60.4	66.2	65.8	68.8	74.6	77.4	76.8
13-67(911)	H25.2.15	♀	61.2	66.2	68.0	68.0	61.8	62.4	63.8	65.8	68.8	63.0	62.0	64.8
14-71(930	H26.3.14	♀	41.6	60.6	60.8	60.8	63.6	63.8	67.2	78.0	80.0	73.2	77.0	76.6
14-73(909)	H26.3.14	♀	52.6	67.0	71.0	71.0	71.0	71.4	78.4	88.6	90.8	86.0	87.8	91.8
14-74(940	H26.3.14	♀	51.8	76.6	78.8	78.8	79.4	81.0	87.8	67.8	71.2	97.6	99.8	100.6
14-75	H26.3.22	♀	54.6	61.6	61.8	61.8	59.0	63.8	69.4	73.0	76.2	77.4	81.4	83.4
14-76	H26.3.28	♀	60.0	69.2	69.4	69.4	64.8	68.0	72.2	40.2	42.4	83.3	85.2	85.8
15-78(77)	H27.3.15	♀	13.5	42.8	42.8	42.8	40.6							
15-80	H27.3.17	♀	55.6	56.2	57.6	57.6	57.6	60.6	63.2					
15-81(929)	H27.3.22	♂	43.4											
15-83	H27.3.24	♀	60.6	66.0	69.8	69.8	68.0	68.6	72.8					
15-84(939)	H27.3.24	♀	45.4	49.6	49.0	49.0	50.4	51.8	52.6					
15-85	H27.3.24	♀	60.0	62.4	62.8	62.8	62.0	63.6	66.8					
15-86	H27.3.26	♂												
15-87	H27.3.27	♂												
15-90	H27.3.28	♂												
16-93	H28.2.16	♂	23.2	34.2	36.4	36.4	35.2	37.2	41.8	40.2	42.4	46.2	45.4	49.0
16-94	H28.3.6	♂	15.6	34.0	39.2	39.2	40.8	43.4	47.4	47.4	48.6	50.6	53.4	58.4
16-95	H28.4.5	♂	6.3	26.4	33.2 2	33.226.5 55.0	62.	43.4						

600 620 6.8(8)212.04 1.2931 TD 243.34. 666 630 651 682 616 682 7,

360 296 240 237 155 126 124 120 147 86 93 290 2,

1 Ⅱ 127 96 96 97 99 99 113 96 96 100 85 96 1,201

440 479 487 643 418 419 489 431 1,618 865 583 714 7,585

2-5 28 kg

№				4	5	6	7	8	9	10	11	12	1	2	3
#236	Gs236( )	H26.8.7	♂	37.2	39.0	39.6	40.8	40.4	40.8	42.0	42.0	43.6	44.6	44.6	44.6
#167	Gs167( )	H24.11.18	♀	37.6	39.0	33.0	33.0	33.0	31.8	33.6	36.2	36.0	39.6	41.0	33.4
#246	Gs246( )	H27.3.4	♀	17.8	21.6	23.4	23.8	21.2	21.6	21.8	21.1	26.0	28.6	28.6	29.6
#1	Gs1( )	H28.6.7	♀			0.8	2.4	5.1	6.6	8.4	11.2	12.6	13.4	13.4	15.2
#2	Gs2( )	H28.7.12	♀				2.2	6.6	8.5	8.2	8.2	10.0	11.0	11.0	12.5
#3	Gs3( )	H29.2.28	♀											1.7	3.3

2-6 28 kg

№				4	5	6	7	8	9	10	11	12	1	2	3
101	G-101( )	H15.4.1	♂	49.6	49.6	54.4	56.8	55.8	50.0	47.4	47.4	51.2	52.8	55.8	55.8
125	G-125( )	H24.8.21	♀	43.6	46.2										
130	G-130( )	H25.4.11	♀			32.2	32.4	35.8							31.8
134	G-134( )	H25.6.21	♀	28.8	31.8	37.4	38.8								
142	G-142( )	H25.8.3	♀	32.6	35.4	38.6	41.6	38.8							
143	G-143( )	H25.8.3	♀	26.4	28.6	29.0	29.2	27.4	32.0	32.2	32.2	32.8	33.0	31.0	31.0
144	G-144( )	H26.1.28	♀		20.3	22.6	22.4	22.8	27.0	26.8	26.8	27.8	33.1	31.0	31.0
40	G-147( )	H26.2.4	♀	21.6	22.6	23.0	22.4	23.4	25.2	25.0	25.0	24.2	26.0	23.2	20.4
149	G-149( )	H26.2.5	♀	21.6	22.0	22.6	25.8	25.2					21.4	20.4	20.4
150	G-150( )	H26.2.5	♀	26.6	27.0	29.2	28.2	28.4	33.2	32.0	32.0	30.6	31.6		
151	G-151( )	H26.2.5	♀	22.0	24.4	25.2	25.4	25.4	28.4	28.4	28.4	26.6	27.4	26.2	26.2
152	G-152( )	H26.2.5	♀			20.0	21.8	22.2	25.4	27.2	27.2	28.2			25.8
154	G-154( )	H26.3.1	♀	22.8	21.2			23.4	26.0	27.0	27.8	27.0	28.0	29.0	29.0
155	G-155( )	H26.3.1	♀					23.2	28.2	28.8	28.8	30.4	35.4		
38	G-156(38)	H26.3.21	♀	22.8	24.4	25.8	25.8	27.6	28.4	28.6	28.6	28.0	31.4		
159	G-159( )	H26.4.19	♀	22.0	29.6								31.2	32.0	32.0
160	G-160( )	H26.4.19	♀	23.0	24.6	26.0	26.4	24.2	28.0	27.2	27.2	28.0	27.0	33.0	33.0
161	G-161( )	H26.5.27	♀	26.0	28.6	31.4	31.4								
164	G-164( )	H26.6.11	♀	21.0	22.6	22.4	24.8	24.0	26.0	26.4	26.4	24.4	25.6	25.4	25.4
174	G-174( )	H27.2.4	♀			21.0	21.8	21.2	22.6	23.8	23.8	23.4	25.6	25.8	25.8
187	G-187( )	H27.8.5	♂	15.3											
188	G-188( )	H27.10.3	♂												
189	G-189( )	H27.10.5	♂												
191	G-191( )	H27.10.7	♂	12.8	14.9	15.2									
192	G-192( )	H27.10.7	♀	10.0	10.2	12.8	14.9	15.2	18.6	19.0	19.0	20.0	23.4		
42	G-194( )	H27.11.12	♀	7.5	8.7	9.7	12.5	12.8	16.6	15.8	15.8	17.0	18.8	21.8	21.8
196	G-196( )	H27.11.28	♂												
197	G-197( )	H27.11.28	♀	9.3	10.0	11.3	13.4	13.6	13.8	18.4	18.4	19.4	19.0	21.0	21.0
199	G-199( )	H27.12.22	♂	5.8	6.2	7.6	7.9								
200	G-200( )	H27.12.22	♀	7.9	9.8	9.0	10.2	10.6	16.4	14.0	15.4	16.0			
201	G-201( )	H27.12.26	♀	9.6	9.9	10.3	12.7	12.6	16.4	15.4	12.0	14.4	18.0	20.4	20.4
202	G-202( )	H28.3.10	♀	3.3	4.7	5.9	6.8	6.4	11.5	12.0	1.8	14.4	16.4	17.8	17.8
203	G-203(-)	H28.3.10	♀	2.9	4.0										
204	G-204(-)	H28.9.3	♀						1.2						
205	G-205( )	H28.9.21	♀						2.1						
206	G-206( )	H28.9.30	♀						1.7						
207	G-207( )	H28.12.9	♀									1.7		6.8	8.0
208	G-208( )	H29.2.2	♂											2.2	
209	G-209( )	H29.2.23	♀											1.7	
210	G-210( )	H29.2.27	♀											1.6	
211	G-211(-)	H29.2.27	♀											1.9	
212	G-212( )	H29.3.2	♀												1.7
213	G-213( )	H29.3.2	♀												1.5
214	G-214(-)	H29.3.3	♂												1.7
215	G-215( )	H29.3.17	♀												1.7

FSC 15 38 58 2017

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2-3 2-4 3 8-1 8-2 2-1

2-2 2-4 8-1 8-2 10 13 14 15

11 12

1,771a 410a

9 14 102 70 8-3 135 1,018.71

1,144 4 5-2 256 5,896.38 1,400 6 63

376.57 525 5 92 587.48 659 7-1 150

1,025.32 1,028 7-2 172 1,216.32 2,217

(2)

3-2 3,340kg 1,700kg 300kg

520kg 403,000kg

151,626kg

(3)

3-3 3-4 277,635kg 1

10 11 381a 58480kg

70%

(4)

(5)

3-5 80 65 85

1,229,668.33kg

(6)

3-6 826

1 3.19ℓ

FSC 15 38 58 2017

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№	(a)	(a)			)	)				10			)	)
									LP		$_2O_5$	$_2O$		
1	206	184	(	H27.10.22	95 (5.2)	460	120	300		10.5	2.3	2.3	36,000 (1,957)	( )
		184	#REF!		( )								( )	( )
2-1		102	(	H27.11.5	50 (4.9)	120	120			7.9			( )	( )
		102	125		( )		440			19.8			50,488 (4,950)	( )
2-2		100	(	H27.11.5	50 (5.0)	120	120			8.0			( )	( )
		100	115		( )		480			22.1			50,508 (5,051)	( )
2-3	417	100	(	H27.10.27	45 (4.5)	240	100			9.6			21,000 (2,100)	( )
		100			( )								( )	( )
2-4		80	(	H27.10.26	45 (5.6)	240	100			12.1			22,000 (2,750)	( )
		80	125		( )				180	9.5			30,120 (3,765)	( )
3	87	71	(	H27.10.29	35 (4.9)	160	80			9.9			27,500 (3,873)	( )
		71			( )								( )	( )
4	126	101		H14.10.29	40 (4.0)	120				2.5			( )	( )
		101			( )								( )	( )
5	38	33	4	H26.10.24	12 (3.6)	60				3.8			( )	( )
		33			( )								( )	( )
6	34	29		H11.11.14	15 (5.2)	60				4.3			( )	( )
		29			( )								( )	( )
7-1	36	34		H11.11.14	16 (4.7)								( )	( )
		34			( )								( )	( )
8-1		90			( )								( )	( )
		90	125		( )				180	8.4			48,192 (5,355)	( )
8-2	358	92			( )								( )	( )
		92	(125)		( )				160	7.3			48,192 (5,238)	( )
8-3		130			( )	160				2.6			( )	( )
		130			( )								( )	( )
9	75	61	( )	H14.10.16	1 (0.2)	160				5.5			( )	( )
		61			( )								( )	( )
10	98	95		H24.6.26	55 (5.8)	240				5.3			( )	( )
		95			( )								( )	( )
11	104	93	,	H19.11.7	36 (3.9)	240				5.4			( )	( )
		93			( )								( )	( )
12	146	132		H22.11.30	66 (5.0)	320				5.1			( )	( )
		132	( )	H22.11.30	7 (0.5)								( )	( )
13	125	113	(	H12.10.11	48 (4.2)	280				5.2			( )	( )
		113		S57,05	( )								( )	( )
14	99	88	(	H27.11.11	27 (3.1)	240	100			11.0			44,000 (5,000)	( )
		88	2	H27.11.11	36 (4.1)								( )	( )
15	49	43	(	H27.11.12	20 (4.7)	120	40			10.1			25,000 (5,814)	( )
		43			( )								( )	( )
	1,998	1,771				3,340	1,700	300					403,000 (2,276)	( )

) 14 , 2O514 , 2O14

) ( ) 10a

FSC 15 38 58 2017

	1	2	3	4		1	2	3	4		
			( )	( )							
	7,469.1	4,070.9	4,545.1	2,557	18642.4					18,642	(1,013)
	4,588.6	693.6	9,618.3		14900.5					14,901	(1,461)
	5,069.5		10,232.1		15301.6					15,302	(1,530)
			( )	( )							
	4,090.6	4,350.1	3,430.0	1,684.4	13555.1					13,555	(1,356)
	5,943.2	3,733.9	3,491.4		13168.5					13,169	(1,646)
			( )	( )							
	1,372.3	1,612.9	2,439.7	671.5	6096.4					6,096	(859)
											( )
											( )
											( )
											( )
	7,917.1				7917.1					7,917	(880)

[redacted]

3-2

		( )	(kg)				10			(kg)	(kg))	(DM,kg)			kg 10a
								2O5	2O						
		1,610	1,120 (7.0)	( )	( )	( )	1.5				( )	52476.3		52476.3	325.9
		1,165	1,740 (14.9)	680 (5.8)	300 (2.6)	( )	6.2	0.4	0.4	131,500	( )	49865.3		49865.3	428.0
		88	240 ( )	100 (11.4)	( )	( )	11.0			44,000	( )	8410.2		8410.2	955.7
		464	( )	920 (19.8)	( )	520 (28.6)	13.8			227,500	( )	36452.5		36452.5	785.6
		339	240 ( )	( )	( )	( )	1.5				( )	4421.2		4421.2	130.4

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№				( )	( )	(kg)	( )
14-	( ) 2		4 26	41.5	9,796.0	4,065.3	20
02-01	( )		4 26	36.0	12,746.0	4,588.6	32
02-02	( )		5 2	54.0	9,388.0	5,069.5	28
02-04	( )		5 13	46.0	12,920.0	5,943.2	35
02-03	( )		5 13	37.1	11,026.0	4,090.6	27
01-	( )		5 19	68.6	10,888.0	7,469.1	40
11-			5 20	85.8	2,364.0	2,028.3	17
03-	( )		5 20	47.6	2,883.0	1,372.3	8
13-			5 20	86.1	2,706.0	2,329.8	17
15-	( )		5 20	53.3	2,982.0	1,589.4	9
10-			5 23	93.1	3,388.0	3,154.2	21
09-			5 23	88.9	1,140.0	1,013.5	10
12-			5 23	93.5	2,640.0	2,468.4	20
02-01	( )		5 24	51.0	1,360.0	693.6	4
14-	( ) 2		6 27	46.7	9,304.0	4,344.9	22
02-04	( )		6 27	32.1	11,632.0	3,733.9	26
02-03	( )		7 6	54.8	7,938.0	4,350.1	26
01-	( )		7 7	69.0	5,900.0	4,070.9	15
03-	( )		7 7	85.7	1,882.0	1,612.9	5
15-	( )		7 7	86.6	1,404.0	1,215.9	4
12-			7 21	69.7	8,266.0	5,761.4	28
11-			7 21	74.8	2,608.0	1,950.8	14
10-			7 21	76.4	5,296.0	4,046.2	26
13-			7 22	89.9	6,544.0	5,883.1	27
09-			7 29	86.2	1,528.0	1,317.2	10
03-			8 31	56.5	4,318.0	2,439.7	14
01-			8 31	63.1	3,280.0	2,069.7	14
01-			9 1	75.5	3,280.0	2,476.4	14
15-			9 1	71.8	2,054.0	1,474.8	7
14-			9 1	61.5	6,194.0	3,809.2	23
02-03			9 2	69.8	4,914.0	3,430.0	21
13-			9 2	89.7	2,330.0	2,090.0	15
03-			10 20	46.5	1,444.0	671.5	5
01-			10 21	77.4	3,304.0	2,557.3	13
02-03			10 21	72.6	2,320.0	1,684.4	8
14-			11 4	80.0	1,578.0	1,262.4	6
15-			11 4	80.0	370.0	296.0	2
10-			11 4	80.0	440.0	352.0	3
13-			11 4	80.0	2,914.0	2,331.2	16
				68.2	187,269.0	111,107.7	652

3-4 28 (

№				( )	( )	(kg)	( )
02-01	115		8 23	36.4	9,828.0	3,577.5	28
02-01	115		8 24	40.0	15,102.0	6,040.8	44
02-02	115		8 24	29.6	1,988.0	588.4	6
02-02	115		8 25	34.0	20,908.0	7,108.7	64
02-02	115		8 26	34.0	7,456.0	2,535.0	22
08-01	125		10 12	48.0	16,494.0	7,917.1	60
08-02	125		10 13	50.5	10,284.0	5,193.6	37
02-04	125		10 13	36.3	1,196.0	434.1	4
02-04	125		10 14	43.0	7,110.0	3,057.3	23
				39.1	90,366.0	36,452.5	288

3-5 28

						85 (kg)
				85		
		277635.0	147560.2	983734.7	80.0	1,229,668.3
		0.0	0.0	0.0	65.0	0.0
		277635.0	147560.2	983734.7		1,229,668.3

3-6 28 2016.4.1 2017.3.31

			*1																	/
	MF135	1968/9/20	47 (-39)	12.00	41.00	11.00	39.00	9.00	23.00	18.00	20.00	0.00	0.00	0.00	0.00	173.00	3,444.83	56.0	238	1.38
	MF194-4	1982/1/30	33 (-25)	9.00	37.00	15.00	21.00	35.00	14.00	48.00	20.00	2.00	3.00	7.50	5.50	217.00	6,904.14	60.0	724	3.34
	T8010F	1985/9/26	30 (-22)		22.00	23.00	16.00	5.00	6.00	14.00	29.00	0.00	0.00	0.00	0.00	115.00	7,964.97	39.0	422	3.67
	5030	1995/3/23	20 (-12)	3.00	36.00	29.50	27.50	22.00	10.00	32.00	26.00	4.00	3.50	0.00	4.00	197.50	4,812.66	72.0	605	3.06
	TJ65	2006/5/26	9 (-1)	14.00	39.00	10.00	26.00	6.00	9.00	15.00	5.00	0.00	0.00	0.00	0.00	124.00	854.99	31.0	561	4.52
	4SDK7	2006/3/30	9 (-4)	42.00	40.00	42.00	34.00	37.00	35.00	35.00	35.00	48.00	43.50	42.00	44.50	478.00	2,628.82	340.0	1,392	2.91
	PC30MR-2	2004/3/15	11 (-6)	0.00	0.00	7.00	7.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	24.00	547.64	6.0	51	2.13
	WA50	2015/8/1	0 (5)	11.00	36.00	26.00	24.00	24.00	13.00	28.00	24.00	7.00	15.20	5.20	9.95	223.35	330.35	145.0	561	2.51
				91.00	251.00	163.50	194.50	140.00	110.00	190.00	159.00	61.00	65.20	54.70	71.95	1,551.85			4,554	—

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								(mm	
4		20.5	9.2	14.9	97.6	61.3	79.5	67.950	
		21.4	6.5	14.0	94.4	38.5	66.5	47.240	
		21.9	9.7	15.8	97.3	56.0	76.7	74.680	
		21.3	8.5	14.9	96.4	51.9	74.2	189.870	
5		23.1	12.1	17.6	93.7	56.2	75.0	59.700	
		26.4	10.2	18.3	96.4	47.9	72.2	40.894	
		27.4	15.4	21.4	94.1	52.3	73.2	19.812	
		25.6	12.6	19.1	94.7	52.1	73.5	120.406	
6		25.6	15.2	20.4	94.5	51.0	72.8	130.264	
		27.9	19.0	23.5	94.5	62.9	78.7	86.930	
		26.3	19.1	22.7	97.7	69.3	83.5	272.934	
		26.6	17.8	22.2	95.6	61.1	78.3	490.128	
7		32.0	22.6	27.3	95.6	59.4	77.5	64.398	
		31.1	21.8	26.5	96.0	66.2	81.1	54.610	
		33.5	22.5	28.0	95.4	62.7	79.1	43.942	
		32.2	22.3	27.3	95.7	62.8	79.2	162.950	
8		35.4	22.6	29.0	97.5	56.5	77.0	41.402	
		35.6	22.8	29.2	96.4	57.0	76.7	23.468	
		31.7	21.6	26.7	94.0	60.5	77.3	32.766	
		34.2	22.3	28.3	96.0	58.0	77.0	97.636	
9		30.5	20.2	25.4	97.6	64.9	81.3	41.656	
		28.2	20.5	24.4	98.3	73.4	85.9	162.143	
		25.9	19.1	22.5	98.7	83.1	90.9	59.182	
		28.2	19.9	24.1	98.2	73.8	86.0	262.981	
10		27.2	17.5	22.4	97.8	68.0	82.9	34.012	
		23.8	13.5	18.7	96.8	62.2	79.5	32.258	
		20.4	11.3	15.9	96.5	3.0	49.8	31.750	
		23.8	14.1	19.0	97.0	44.4	70.7	98.020	
11		17.3	4.9	11.1	97.3	69.9	83.6	6.604	
		18.8	7.7	13.3	98.0	67.0	82.5	41.402	
		15.3	5.3	10.3	96.2	63.5	79.9	28.448	
		17.1	6.0	11.6	97.2	66.8	82.0	76.454	
12		15.5	2.9	9.2	97.3	59.0	78.2	16.002	
		12.1	0.9	6.5	97.4	69.9	83.7	25.400	
		12.1	2.1	7.1	96.3	69.9	83.1	56.642	
		13.2	2.0	7.6	97.0	66.3	81.7	98.044	
1		12.6	0.1	6.4	97.1	55.7	76.4	14.224	
		8.5	-2.1	3.2	95.2	60.1	77.7	15.748	
		9.5	-2.2	3.7	95.7	57.1	76.4	25.146	
		10.2	-1.4	4.4	96.0	57.6	76.8	55.118	
2		9.9	-1.0	4.5	95.5	56.4	76.0	21.336	
		11.7	-1.1	5.3	96.2	55.8	76.0	16.002	
		11.9	-1.4	5.3	93.9	51.4	72.7	21.590	
		11.2	-1.2	5.0	95.2	54.5	74.9	58.928	
3		12.5	-0.4	6.1	94.4	51.8	73.1	8.382	
		15.4	0.2	7.8	92.3	38.1	65.2	5.588	
		14.4	2.8	8.6	94.6	53.1	73.9	35.072	
		14.1	0.9	7.5	93.8	47.7	70.7	49.042	

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区分		4	5	6	7	8	9	10	11	12
		13.7	18.1	21.2	25.5	26.2	22.6	17.4	9.9	5.9
		11.7	16.5	20.8	24.5	25.3	21.2	14.9	9.2	4.1
		26.0	28.8	29.9	32.5	35.9	32.1	29.9	21.0	17.5
		0.1	5.7	8.9	17.5	15.2	16.0	5.7	-1.4	-4.1
		207.5	138.5	516.0	192.5	72.0	329.5	105.0	77.0	97.0
		127.1	148.0	251.5	232.2	137.6	181.0	97.5	70 ľ	ĭ

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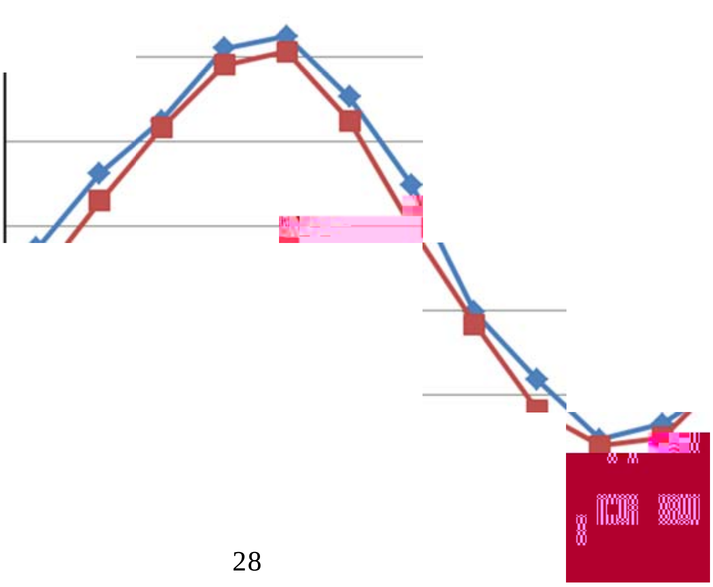

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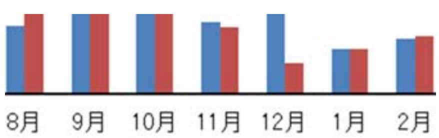

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1. ± / 7 í#ã p7™ Ç í3Æ.(/ñ Ó í Æ •7™ Ç í « • Ø M4{ í"& ¸*· í p • ô œ í £ • Ÿ ¹ í •.(¿7• í Dhuagal Lindsay%Á N , ¸>& 2016>>8' Ê å œ _ > E •0v » ¯ v b ?4) b •+ ö>8 í ´ ¹ R ³ . • æ †' Neocalanus cristatus>& • – " ©8®>' b #'>,#Õ"@ j&É Û>* 55>823–30>,
2. « • Ø M4{ í ± / 7 í3Æ.(/ñ Ó í8ä#ã ú í(•1Â r ~ í ¾ î2 í \ • , Ç í2Š'g e í'Ÿ] ˆ Ê í ` 1Â5 w •>&2016>>8 š Å ¡ Û ¤ b « º ß Å Þ>+ © Ù å b ì Û"@2A _ | •1 $Î>, È å ± Û ± Û7T#Õ"@ j&É Û%Ê'2&É!) ^ Æ j Ç •>+ Ý »&É Û M*ñ%Ê'2 - å ±>+ Ì>* 14>81–6>,
3. 3Æ.(/ñ Ó í « • Ø M4{ í Æ •7™ Ç í ¾ î2 í ± / 7 >&2016>>8 š Å ¡ Û ¤ \ Ð ¼ ž ¶ œ Â:6 b ¹ #Õ b 60°6 >, È å ± Û ± Û7T#Õ"@ j&É Û%Ê'2&É!) ^ Æ j Ç •>+ Ý »&É Û M*ñ%Ê'2 - å ±>+ Ì>* 14>87–11>,
4. •.(³0°>& 2016>>8#Õ A S%¼ _ ^ • •.4 P%¼!J.4 b#Õ Ñ S$ \ • b#" C>, milsil +¬!› \&É Û b _ 1 >& \'g&É Û $"@9 >>*9>814>+16

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1. Tsujita>*N>¸>* Kuwahara>*H>¸>*Koyama>*H>¸>*Yanaka>*N>¸>*Arakawa>*K>¸>*Kuniyoshi>*H>¸>&2017>>8 Molecular characterization of aspartylglucosaminidase>*a lysosomal hydrolase upregulated during strobilation in the moon jellyfish>*Aurelia aurita>,Bioscience>*Biotechnology>*and Biochemistry>*81>8 938 >+950>,
2. Ohtsuka S>*Tanaka H>*Boxshall GA>&2016>>8A new hyperbenthic cyclopoid copepod from Japan>8first record of the genus Cyclopicina in the Indo>+Pacific region>, Zoological Science>*33>8659–666>,
3. Ohtsuka S>*Nishida S>&2016>>8Copepod biodiversity in Japan>8recent advances in Japanese copepodology >&Motokawa M>*Kajihara H>*eds>>8Species diversity of animals in Japan>,Springer>*Tokyo>*pp>,565–602>,
4. « • Ø M4{ í ± / 7 í3Æ.(/ñ Ó í ¾ î2 í \ • , Ç í2Š'g e í'Ÿ] ˆ Ê í `1Â5 w • >&2016>>8 !) ^ Æ •#Ø š Å ¡ Û ¤ b8õ#Õ"@ \ ¤8õ ‰ 2 _6õ M •%Ê'2>, È å ± Û)r œ $"@9 %Ê'2 Ì>* 8>839–43>,
5. Kashiwagi H>* Mizukawa Y>* Iwasaka M>* Ohtsuka S>&2017>>8Magnetic light cloaking in the marine planktonic copepod Sapphirina, AIP Advances>* 7>* 56731>8 doi>8 10>, 1063/1>, 4978210>,
6. Mulyadi>*Nishida S>*Ohtsuka S>&2016>>8Seven new species of Tortanus>&Atortus>>&Copepoda>*Calanoida>* Tortanidae>' from North Sulawesi>*Indonesia>, Crustaceana>*90>&1>>877–99>,
7. Venmathi Maran BA>*Cruz>+Lacierda E>*Ohtsuka S>*Nagasawa K>&2016>>8New records of Caligidae >&Copepoda>* Siphnostomatoida> from the Philippines>, Zootaxa>*4174>&1>>8 237–248>,
8. Venmathi Maran BA>*Suárez>+Morales E>*Ohtsuka S>*Soh HY>*Hwang UW>&2016>>8On the occurrence of caligids>&Copepoda>8 Siphonostomatoida> in the marine plankton>8 a review and checklist, Zootaxa>* 4174 >&1>>8 437–447>,
9. V#ã í / >&2016>>8 7 † C Ü"@ ß>+ ¬ ¢ Û « b*• 7 ö µ S>+ 78®+b c*• 7 ö ¥ V _ $ Z M • b ?>= >+>, ì Û \#Õ"@>* 55>8 5>+7>,
10. Barutçular>*C>¸>*Yıldırım>*M>¸>*Koç>*M>¸>*Dizlek>*H>¸>*Akıncı>*C>¸>*EL Sabagh>*A>¸>*Saneoka>*H>¸>* Ueda>*A>¸>*Islam>*M>, S>¸>*Toptaş>*I>¸>*Albayrak>*O>¸>*Tanrıkulu>*A>¸>&2016>>8Quality of spring wheat

in Mediterranean environments>& Grain quality characterization under drought and heat stress>, Sylwan>*160>8 43>+56>,

11. Barutçular>*C>,>*El Sabagh>*A>,>*Islam>*M>,S>,>*Ueda>*A>,>*Saneoka>*H>,>&2016>*8 Identification of drought tolerance indices associated with grain weight in maize at grain filling stage>, Sylwan>*160>8 32>+42>,
12. Assaha>*D>,V>,M>,>*Liu>*L>,>* Mekawy>*A>,M>,M>,>*Ueda>*A>,>*Nagaoka>*T>,>* Saneoka>*H>, >&2016>*8 Effects of drought stress on growth>*solute accumulation and membrane stability of leafy vegetable>* huckleberry>& Solanum scabrum Mill >,>*>, Journal of Environmental Biology>*37>8 107>+114>,
13. El Sabagh>*A>,>*Soroul>*S>,>*Morsi>*A>,>*Islam>*M>, S>,>*Ueda>*A>,>*Barutcular>*C>,>*Arioglu>*H>,>* Saneoka>*H>,>&2016>*8 Role of osmoprotectants and compost application in improving water stress tolerance in soybean>& Glycine max L>,>*>, International Journal of Current Research>*8>8 25949>+25954>,
14. El-Sabagh, M., Taniguchi, D., Sugino, T., Obitsu, T.(2016) Metabolomic profiling reveals differential effects of glucagon-like peptide-1 and insulin on nutrient partitioning in ovine liver. Animal Science Journal, 87: 1480–1489

3>,-- i

1. Kato>*A>,>*Baba>*M>,>*Matsuda>*S>, & Iryu>*Y>,>&2016>*8 Chapter 14, Western Pacific>, In “Rhodolith/maerl beds>8 A Global Perspective>”& Riosmena>+Rodriguez>*R>,>*Kendrick>*G>, & Aguirre>*J>, eds>,>*>, Coastal Research Library 15, Springer>*Switzerland>8 pp>, 334>+347>,

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1. 3·#ã,ï ¬ í ` £ 6 • í3· D … í%® p0d … í,¨]2< í \ • , Ç>8 Ñ ¬ ¡ Û ¤ b « º ß Å Þ>+ © Ù å _ W Z$Î#' Q • M • Ü ¯ ¯>+ Ò • È (0Ž4Ý(ò4G Ê*L b0Ž Ò>, ¥ •3°,A ì Û 2017 º Ø ± >&2017 º 3 v 20 ¥>* ¿4” ê Ê ± Û>'
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3. 3Æ.(/ñ Ó í ± / 7 í K Srinui í0Y] ß>8 ¾ % ¾ ! ” ª ” _ > E • ¡ Û ¤8® b ¹#Õ:68®*L7Ÿ \' 6ë6õ € _ X 8 Z>, 2016 º ¥ • Ë å º « Û í ¥ • É Û å ¡ º å Û œ ± >&2016 º 9 v 8 ¥>*!Ã • %4'g ± Û>'
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< _ Z < • s8j>, ¥ • u p*ç q Û 2016 º Ø ,2! ± >& 2016 º 9 v 20 ¥ ? } 22 ¥>* ,2! ± Û>'

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¤>, ¥ • u p*ç q Û 2016 º Ø ,2! ± >& 2016 º 9 v 20 ¥ ? } 22 ¥>* ,2! ± Û>'

10. Chuamnakthong>*S>,>*Kokulan>*K>, S>,>*Ueda>*A>,>*Saneoka>*H>,>&2016>>8 The effects of mild salinity and osmotic pretreatment on salt acclimation in rice>, 2016 º Ø ¥ • u p*ç q Û 6õ0Y -4Š1n ‡ >& 2016 º 12 v 8 ¥>* Ó Ý Ã Ý ¡ ¿4”>'

11. Kokulan>*K>, S>,>*Osumi>*S>,>*Chuamnakthong>*S>,>*Ueda>*A>,>*Saneoka>*H>,>&2016>>8 Varietal differences in salt acclimation ability of rice>, 2016 º Ø ¥ • u p*ç q Û 6õ0Y -4Š1n ‡ >& 2016 º 12 v 8 ¥>* Ó Ý Ã Ý ¡ ¿4”>'
ô ì ß>8li<0b78 14aj7990bc7>11.4494ed>(li<0c2c080edb0c6 052f9c>(li<04
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12. ô î ß>82 $8ô ² ó ["I f ^ g"g b ? † g B M • Ü"@>, "¨ 2 G Ü"@ b $8ô%Ê'2>& 2016 º 9 v 3 ¥>* ¡ , ‡ ± Û>'

13. Dissanayaka>*D>, M>, S>, B>,>*Maruyama>*H>,>*Nishida>*S>,>*Tawaraya>*K>,>*Wasaki>*J>,>8 Landrace of Japonica rice>* Akamai>&

29 ¥ &„ ^ ± Û>'

23. ¡5 < , í ± ë Ç í Ç]&ˆ Ê í V5 ô ‡ í • § ¾ N í ` ì [Ç í&>4Š%$ ž>8 B7¤ Ö l b 6 ™0 c) • ž Z @ – å « Ü å (* _ l p M s8j . ¥ •$ #Ø Û "¨ 122 G ± >& 2017 º 3 v 28 ¥ &„ ^ ± Û>'

24. 6Û %?*> Ê í ¡5 < , í û3¶7o • í(#ã Ê í ø , •4{ í ` ì [Ç>8$Ñ, LED !· Â @ Ê"5 b Ó Û º ½ å (* _ l p M s8j ¥ •$ #Ø Û "¨ 122 G ± >& 2017 º 3 v 29 ¥ &„ ^ ± Û>'