Slide 1

進口乳牛精液性能標準與選性精液來源國

Nations of Sexed Semen and Import Standards of Semen in Dairy Cattle

畜產試驗所新竹分所
HsinChu Branch Station, Livestock Research Institute

趙俊炫副研究員、蕭振文分所長
Mr. Chun-hsuan Chao and Mr. Jen-wen Shiau
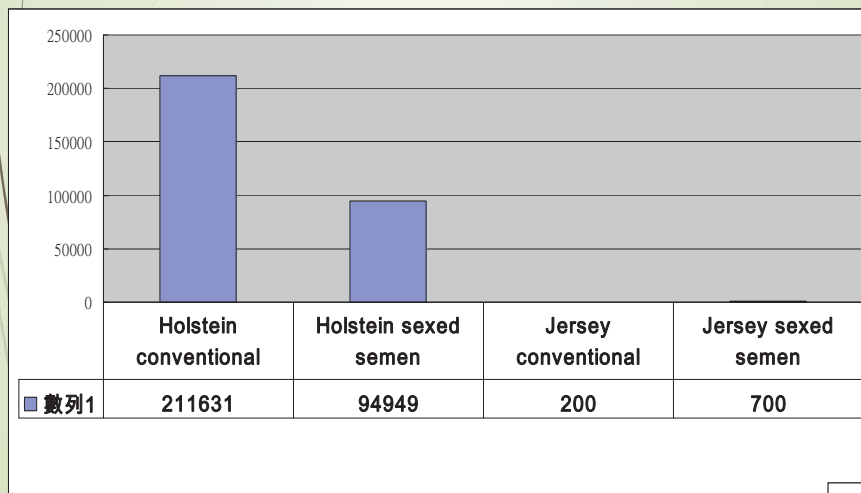
Date : 2019.06.04

Slide 2

大綱 Outline

- 1.「進口乳牛冷凍精液性能審核標準」修正歷程

  Revision history of "Performance Requirements for the Importation of Dairy Bull Frozen Semen″

- 2. 分所牧場挑選冷凍精液標準？

  What Is the Performance Requirements for Dairy Bull Frozen Semen used in our herd?

- 3. 種公牛選配軟體

  Mating program

Slide 3

2018年冷凍精液進口量 The amount of imported frozen semen in 2018

	Holstein conventional	Holstein sexed semen	Jersey conventional	Jersey sexed semen
數列1	211631	94949	200	700

(Bar chart with y-axis scale: 0, 50000, 100000, 150000, 200000, 250000)

Slide 4

「進口乳牛冷凍精液性能審核標準」修正歷程 Revision history of "Performance Requirements for the Importation of Dairy Bull Frozen Semen″ -2014

乳產量 (milk yield)	美國US	乳產量預測遺傳能力 (PTAM)
	加拿大Canada	乳產量預估育種價 (EBVM)
	日本Japan	乳產量預估育種價 (EBVM)
	荷蘭Netherlands	乳產量指數(MPI)
乳成分產量 (component)	美國US	乳脂量預測遺傳能力 (PTAF) 乳蛋白量預測遺傳能力 (PTAP)
	加拿大Canada	乳脂預估育種價 (EBVF) 乳蛋白預估育種價 (EBVP)
	日本Japan	乳脂預估育種價 (EBVF) 乳蛋白預估育種價 (EBVP)
	荷蘭Netherlands	乳脂指數(FPI) 乳蛋白指數(PPI)
體型 (type)	美國US	體型評分預測遺傳能力(PTAT)
	加拿大Canada	體型結構(CONF)
	日本Japan	體型評分預估育種價(EBVT)
	荷蘭Netherlands	體型總分(FINAL)

- 審核標準為輸出國當前所有參加後裔檢定公牛排行榜前50%之平均值範圍下限。

- (The auditing standard is the lower limit of the average range of the top 50% of all recently progeny-tested AI bulls in the exporting country.)

- 進口乳牛冷凍精液不含以下基因(without gene carrier)：紅色皮毛基因(Red hair color)、牛淋巴球黏力缺乏症(BL)基因、複合性脊椎畸形症(CV)基因、瓜胺酸症(CITR)基因。

Slide 5

▶ **2014-now**

修訂採**綜合性狀選拔指數**，審核標準為各該輸出國當前所有參加後裔檢定公牛排行榜前50%之平均值範圍下限。
(Holstein bull frozen semen by selection indexes)

▶ 娟姍牛則維持原「進口乳牛冷凍精液性能審核標準」，採各經濟性狀之性能審核標準，審核標準為各該輸出國當前所有參加後裔檢定公牛排行榜前50%之平均值範圍下限。

Jersey：The auditing standard is the lower limit of the average range of the top 50% of all recently progeny-tested AI bulls in the exporting country.)

▶ 進口乳牛冷凍精液不含以下基因(without gene carrier)：紅色皮毛基因(Red hair color)、牛淋巴球黏力缺乏症(BL)基因、複合性脊椎畸形症(CV)基因、瓜胺酸症(CITR)基因、短脊椎綜合症(BS)基因。

總性能選拔指數(TPI)公式為(TPI formula)：

[21(PTAP/19)+17(PTAF/22.5)+8(FE/44)
+10(PTAT/.73)-1(DF/1.0)+11(UDC/.8)+6(FLC/.85)
+4(PL/1.51)+3(Liv/1.27)-5(SCS/.12)+13(FI/1.25)-2(DCE/1.0)-1(DSB/0.9)]3.9+2187

Production：46%, Health & Fertility：26%, Conformation：28%

5

Slide 6

▶ 2016

新增**德國**冷凍精液性能審核標準（increase auditing standard for **German** Holstein bull frozen semen）

▶ 總優點指數（Total Merit Index, RZG）：98以上。

▪ 乳產量及乳成分之可信度（Reliability, REL）：70%以上。
▪ 不含紅色皮毛基因（Red hair color）。
▪ 不含淋巴球黏力缺乏症（BL）基因。
▪ 不含複合性脊椎畸形症（CV）基因。
▪ 不含瓜胺酸症基因（CITR）基因。
▪ 不含短脊椎綜合症（BS）基因。

▶ 2018

▶ 新增**法國**冷凍精液性能審核標準（increase auditing standard for **France** Holstein bull frozen semen）

▶ 總優點指數（Total Merit, ISU）150.14以上

6

Slide 7

in database as of 2019-04-29

	AY F	AY M	BS F	BS M	GU F	GU M	HO F	HO M	JE F	JE M
50K	0	20	91	5652	0	0	20764	37586	914	4938
50K2	157	423	137	14878	22	178	37260	46070	887	3131
3K	3	0	473	11	5	0	49024	3908	9679	196
HD	12	520	3	182	26	120	2051	2034	198	212
640K	0	0	0	0	0	0	0	19	0	0
LD	973	18	528	163	0	0	165314	8634	10916	250
GGP	56	5	481	288	0	4	40381	13423	12530	1509
GHD	448	430	175	576	332	251	16070	13314	973	1330
GP2	361	81	621	1211	163	8	58585	24914	17141	3181
ZLD	0	0	85	20	1	0	107170	1145	10668	152
ZMD	568	1	2	0	0	0	2701	588	2	21
ELD	0	0	0	0	0	0	1027	300	5	7
LD2	0	0	16	407	0	0	13571	3084	1990	33
GP3	836	137	1213	2697	1301	7	93965	36981	29136	5418
ZL2	4	0	430	24	0	0	315646	7891	23424	384
ZM2	0	13	13	18	18	20	19989	1812	4130	297
GH2	109	453	16	1150	11	168	6893	11923	697	1625
G7K	795	1	148	7	4	0	36684	513	13359	33
GP4	873	107	1398	2287	519	130	91728	31489	22975	5004
ZL4	102	5	470	62	0	0	297059	9316	14452	273
AMD	0	0	0	0	0	0	506	8	10	0
GF1	0	0	2	0	0	0	0	0	0	0
BG1	1	0	18	1	0	0	6262	39	207	2
GMD	495	144	1241	2967	551	124	34807	26258	32265	6297
G9K	843	10	1062	201	0	0	186430	4113	64168	1362
ZL5	999	29	1696	63	712	146	848671	27997	67166	750
50K3	0	1	0	5	0	0	59	733	0	13
ZU1	0	0	0	0	0	0	1798	0	478	0
ID3	0	0	0	0	1	0	154	4	4	0
AM2	0	1	0	0	0	0	826	78	0	7
EL7	0	0	0	0	0	0	337	278	17	3
DEA	0	0	0	1717	0	0	0	0	0	0
VM1	0	1	127	8	0	5	13507	436	2515	474
WMD	0	0	0	0	0	0	110	0	88	4
Total	7635	2400	10446	34595	3666	1161	2469349	314888	340994	36906

USA

Top 200 TPI Genomic Young Bulls

7

Slide 8
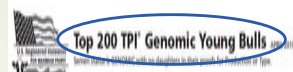
USA Holstein genomic young bulls

▶ 2019

▶ 新增**美國基因體檢測年青公牛**冷凍精液進口，進口標準採當前所有參與後裔檢定公牛排行榜前**10%**之平均值範圍下限。Increase **USA Holstein genomic young bulls** frozen semen. The auditing standard is the lower limit of the average range of the top **10%** of all recently progeny-tested AI bulls.

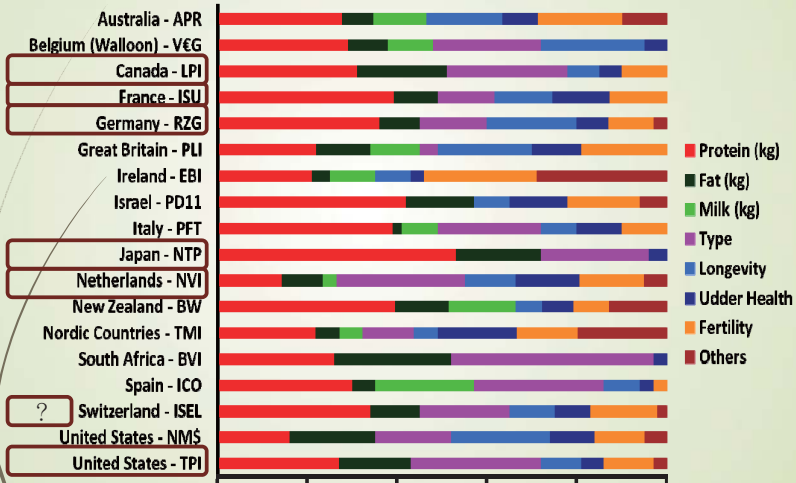▶ 請進口商明確標示該公牛屬於後裔檢定公牛或是基因體檢測年青公牛。有關加拿大、日本、德國、荷蘭及法國之基因體檢測選拔指數，待相關資訊完備後再行研議。

8

AVERAGE AND RANGE OF PROOFS FOR RECENTLY PROGENY-TESTED AI BULLS*

Bulls	PROTEIN		FAT				COMPOSITES						
	PTAP	PTA%P	PTAF	PTA%F	PTAM	NM$	PTAT	UDC	FLC	PL	DPR	SCS	TPI
TOP 1%	72 (66 to 91)	0.13 (0.12 to 0.19)	96 (89 to 121)	0.31 (0.27 to 0.43)	2418 (2150 to 3801)	819 (768 to 992)	3.33 (3.01 to 4.23)	3.25 (2.99 to 4.15)	2.59 (2.31 to 3.49)	7.6 (7.0 to 9.5)	6.4 (5.6 to 8.5)	2.43 (2.19 to 2.48)	2639 (2578 to 2824)
TOP 5%	60 (53 to 91)	0.10 (0.09 to 0.19)	82 (73 to 121)	0.24 (0.20 to 0.43)	1969 (1672 to 3801)	725 (663 to 992)	2.70 (2.31 to 4.23)	2.77 (2.44 to 4.15)	2.13 (1.85 to 3.49)	6.7 (6.0 to 9.5)	4.9 (4.1 to 8.5)	2.52 (2.19 to 2.58)	2533 (2456 to 2824)
TOP 10%	55 (47 to 91)	0.10 (0.08 to 0.19)	74 (64 to 121)	0.21 (0.16 to 0.43)	1754 (1434 to 3801)	680 (609 to 992)	2.42 (2.01 to 4.23)	2.53 (2.16 to 4.15)	1.91 (1.57 to 3.49)	6.1 (5.3 to 9.5)	4.3 (3.4 to 8.5)	2.56 (2.19 to 2.63)	2476 (2385 to 2824)
TOP 20%	48 (39 to 91)	0.08 (0.06 to 0.19)	66 (54 to 121)	0.17 (0.12 to 0.43)	1519 (1146 to 3801)	625 (535 to 992)	2.13 (1.69 to 4.23)	2.25 (1.79 to 4.15)	1.66 (1.29 to 3.49)	5.4 (4.4 to 9.5)	3.7 (2.6 to 8.5)	2.62 (2.19 to 2.70)	2407 (2298 to 2824)
TOP 30%	44 (34 to 91)	0.07 (0.05 to 0.19)	61 (47 to 121)	0.15 (0.09 to 0.43)	1358 (943 to 3801)	585 (480 to 992)	1.94 (1.45 to 4.23)	2.05 (1.53 to 4.15)	1.49 (1.05 to 3.49)	5.0 (3.8 to 9.5)	3.1 (1.9 to 8.5)	2.65 (2.19 to 2.75)	2359 (2229 to 2824)
TOP 50%	38 (25 to 91)	0.05 (0.02 to 0.19)	52 (34 to 121)	0.12 (0.04 to 0.43)	1127 (621 to 3801)	523 (382 to 992)	1.66 (1.09 to 4.23)	1.76 (1.14 to 4.15)	1.24 (0.69 to 3.49)	4.3 (2.7 to 9.5)	2.4 (0.9 to 8.5)	2.72 (2.19 to 2.84)	2284 (2103 to 2824)
ALL	26 (-68 to 91)	0.02 (-.15 to 0.19)	34 (-58 to 121)	0.04 (-.29 to 0.43)	628 (-2993 to 3801)	378 (-448 to 992)	1.08 (-4.65 to 4.23)	1.14 (-4.42 to 4.15)	0.67 (-2.46 to 3.49)	2.7 (-5.4 to 9.5)	1.0 (-5.8 to 8.5)	2.84 (2.19 to 3.55)	2106 (1244 to 2824)
No. Bulls	7132	7132	7132	7132	7132	7132	5298	5298	5298	7132	7132	7132	5270

*All bulls entered AI since June 2011 (Received first proof in past 4 years)
*December 2018 official proofs from USDA-AIPL and Holstein Association USA
*Must be in NAAB cross-reference system

（基因體檢測年青公牛進口標準）
US Holstein genomic young bulls

（後裔檢定公牛進口標準）all recently progeny-tested AI bulls

9

HOLSTEIN Bulls / Taureaux HOLSTEIN
December 2018 Percentile Rank Table / Tableau de Rangs Centiles de Decembre 2018

% Rank / % Rang	Milk Lait	Fat Gras	Prot. Prot.	Conf. Conf	LPI IPV	LPI PROD IPV PROD	LPI DUR IPV DUR	LPI H&F IPV S&F
99	2483	100	81	13	3181	1579	1408	679
98	2261	95	75	11	3094	1529	1353	641
97	2160	89	73	10	3057	1497	1329	622
96	2064	85	70		3012	1462	1310	604
95	1987	82	68	9	2986	1447	1286	595
94	1904	79	66		2974	1431	1274	585
93	1858	76	65	8	2957	1409	1261	576
92	1787	74	63		2942	1396	1243	567
91	1717	73	61		2935	1387	1237	566
90	1674	71	60	7	2918	1371	1225	557
89	1634	69	59		2899	1361	1213	548
88	1599	68	58		2891	1349	1206	547
87	1547	67	57		2877	1340	1194	539
86	1521	66	56	6	2860	1333	1182	538
85	1487	65	55		2849	1324	1181	530
84	1453	63	54		2837	1314	1176	529
83	1407	62	53		2825	1305	1164	528
82	1378	61	52	5	2811	1295	1158	519
81	1344	59			2794	1289	1151	519
80	1314		51		2785	1279	1145	511
79	1285	58	50		2777	1273	1139	509
78	1255	57	49		2764	1267	1127	500
77	1235	56	48		2756	1261	1121	501
76	1212	55		4	2746	1251	1115	501
75	1189	54	47		2738	1248	1109	500
74	1167	53	46		2729	1232	1103	492
73	1135	52	44		2717	1232	1096	491
72	1118	51			2706	1223	1090	490
71	1095	50			2697	1216	1084	483
70	1066		43		2689	1213	1083	482
69	1046	49		3	2681	1207	1078	481
68	1023	48	42		2672	1201	1072	480
67	1005	47	41		2664	1194	1066	473
66	982	46			2655	1191	1056	472
65	967	45	40		2645	1185	1054	471
64	944				2636	1179	1048	464
63	916	44	39		2628	1172	1047	463
62	899	43	38	2	2622	1166	1041	462
61	884	42	37		2615	1160	1040	455
60	858				2609	1150	1035	454
59	836	41	36		2600	1144	1029	447
58	824	40			2591	1138	1023	447
57	805	39	35		2580	1131	1017	445
56	783	38	34		2572	1128	1016	444
55	768			1	2563	1119	1011	443
54	743	37	33		2556	1112	1005	435
53	731	36	32		2544	1109	999	435
52	717		31		2535	1106	993	434
51	698				2531	1100	986	427
50	676	34	31		2524	1097	985	426

10

２．後代検定事業参加種雄牛

評価値の平均値と範囲

区分	総合指数	長命連産効果	乳代効果	GEBV M	GEBV F	GEBV F%	GEBV SNF	GEBV SNF%	GEBV P	GEBV P%	決定得点	乳器
		(円)	(円)	(kg)	(kg)	(%)	(kg)	(%)	(kg)	(%)	(点)	(%)
上位5%	2640 (2332~3218)	106,491 (92,239~147,967)	148,245 (131,234~191,049)	1602 (1462~1885)	70 (61~94)	0.66 (0.52~0.89)	134 (118~172)	0.36 (0.32~0.43)	51 (45~58)	0.32 (0.28~0.40)	1.87 (1.68~2.20)	1.95 (1.79~2.41)
上位10%	2428 (2137~3218)	97,186 (83,577~147,967)	135,317 (116,385~191,049)	1474 (1264~1885)	64 (55~94)	0.54 (0.39~0.89)	122 (105~172)	0.32 (0.25~0.43)	46 (40~58)	0.28 (0.23~0.40)	1.74 (1.51~2.20)	1.81 (1.56~2.41)
上位15%	2296 (1953~3218)	91,445 (77,468~147,967)	126,751 (103,570~191,049)	1379 (1144~1885)	60 (47~94)	0.48 (0.32~0.89)	114 (93~172)	0.29 (0.20~0.43)	43 (35~58)	0.26 (0.17~0.40)	1.63 (1.32~2.20)	1.69 (1.40~2.41)
上位20%	2198 (1833~3218)	87,634 (71,378~147,967)	120,362 (96,284~191,049)	1303 (1020~1885)	56 (42~94)	0.44 (0.27~0.89)	109 (87~172)	0.26 (0.17~0.43)	41 (33~58)	0.23 (0.15~0.40)	1.54 (1.21~2.20)	1.61 (1.30~2.41)
上位30%	2029 (1595~3218)	79,929 (59,241~147,967)	110,112 (80,994~191,049)	1175 (841~1885)	50 (35~94)	0.36 (0.17~0.89)	99 (75~172)	0.23 (0.14~0.43)	37 (28~58)	0.20 (0.10~0.40)	1.41 (1.06~2.20)	1.47 (1.12~2.41)
上位50%	1753 (1233~3218)	67,743 (38,165~147,967)	93,637 (57,559~191,049)	988 (555~1885)	42 (24~94)	0.17 (0.02~0.89)	85 (52~172)	0.15 (0.04~0.43)	32 (21~58)	0.15 (0.04~0.40)	1.20 (0.74~2.20)	1.27 (0.80~2.41)
全件	1194 (-770~3218)	37,131 (-71,597~147,967)	56,511 (-88,703~191,049)	548 (-1111~1885)	24 (-44~94)	0.03 (-0.70~0.89)	52 (-73~172)	0.04 (-0.67~0.43)	21 (-21~58)	0.04 (-0.31~0.40)	0.74 (-1.20~2.20)	0.75 (-1.18~2.41)
頭数	394	394	394	394	394	394	394	394	394	394	394	394

11

German Holstein

Dezemb 2017 % Grenze rank ... %	RZM	RZE	RZS	RZN	RZR	RZKm	RZG	ZW Mkg	ZW F %	ZW Fkg	ZW E %	ZW Ekg
99	133	125	123	121	120	114	134	1687	0,68	59	0,28	48
98	130	122	120	119	117	112	130	1517	0,59	54	0,25	43
97	127	119	118	117	115	110	128	1414	0,53	49	0,22	40
96	125	118	117	116	114	110	126	1325	0,49	46	0,2	37
95	124	117	116	115	113	109	124	1256	0,46	43	0,19	35
90	119	113	112	111	109	107	118	1015	0,34	33	0,14	28
85	116	110	109	108	107	105	114	844	0,27	28	0,11	23
80	113	108	107	106	105	104	110	717	0,2	23	0,09	19
75	111	105	104	103	103	102	107	600	0,15	19	0,06	16
70	109	104	103	102	101	101	104	507	0,1	15	0,05	13
65	107	102	102	100	101	101	102	416	0,06	12	0,03	10
60	105	101	100	99	99	101	101	328	0,02	9	0,01	8
55	103	99	99	97	97	100	99	-243	0,01	-6	0,01	5
50	102	98	97	96	96	99	97	-161	0,05	-2	0,02	3

12

	MILK (kg)	FAT (kg)	PROT (kg)	FAT (%)	PROT (%)	PERS	ROW	INET (E)	NVI	FRAME	UDDER	LEGS&FEET	FINAL
TOP 1%													

(Netherlands CRV proof table — detailed numeric values)

All bulls entered A2, born after 1- 4-2007
December 2015 proofs

13

Index	Max value	Top 1% threshold	Top 5% threshold	Top 10% threshold	Top 25% threshold	Mean	Standard deviation	Number of bulls
ISU	237	203	194	186	170	150,14	26,51	2979
INEL	87	65	53	48	37	26	16,88	2979
MG	103	77	62	54	41	26,33	21,77	2979
MP	66	52	43	38	30	20,42	13,72	2979
TB	10,4	7,4	5,3	4,2	2,5	0,65	2,72	2979
TP	6,8	3,3	2,5	2,1	1,3	0,52	1,21	2979
LAIT	2265	1647	1267	1094	826	517,44	468,09	2979
CEL	4,3	3,1	2,4	2,1	1,6	0,9	0,98	2979
MACL	3,5	2,4	1,8	1,5	1	0,44	0,86	2979
FERT	3,7	2,7	2,2	1,9	1,4	0,8	0,89	2979
FERG	2,4	1,6	1,3	1,1	0,8	0,41	0,55	2979
IVIA1	3	2,4	1,8	1,5	1,1	0,42	0,92	2979
LGF	3,2	2,5	2,1	1,9	1,5	1,01	0,7	2979
NAI	95	94	93	92	91	89,94	1,93	2979
VEL	96	95	94	94	93	91,47	1,99	2979
VIN	96	95	94	94	94	92,9	1,01	2979
VIV	98	96	96	95	95	93,58	1,7	2979
TR	2,5	1,8	1,2	1	0,6	0,05	0,74	2979
TE	2,2	1,7	1,3	1,1	0,7	0,32	0,63	2979
PS	3,5	2,4	1,9	1,6	1,1	0,53	0,83	2979
PJ	4,2	3,6	3,1	2,7	2,1	1,37	1,04	2979
EQ	3,3	2,3	1,8	1,5	1	0,49	0,8	2979
AA	3,8	2,8	2,3	2	1,5	0,9	0,89	2979
AH	4,1	3	2,4	2,1	1,6	1,13	0,82	2979
EA	4	2,4	1,9	1,6	1	0,46	0,86	2979
IA	3,3	2,3	1,8	1,5	1	0,38	0,85	2979
LT	2,9	1,9	1,3	0,9	0,4	-0,19	0,87	2979
HS	4	3,1	2,5	2,2	1,6	0,94	0,97	2979
LP	3,2	2,3	1,7	1,4	0,9	0,41	0,8	2979
PC	3,3	2,3	1,7	1,5	1	0,43	0,8	2979
AC	3	2,2	1,8	1,5	1,1	0,62	0,72	2979
EC	2,5	1,6	1	0,8	0,3	-0,14	0,71	2979
IS	3,8	2,6	1,9	1,5	1	0,34	0,93	2979
IB	3,1	2	1,4	1,1	0,6	0,02	0,83	2979
AJ	2,1	1,5	0,9	0,6	0,2	-0,33	0,75	2979
PI	3,1	2	1,5	1,2	0,8	0,39	0,69	2979
MR	3,2	2,2	1,7	1,4	0,9	0,41	0,81	2979
LO	3	2,2	1,8	1,5	1,1	0,64	0,69	2979
MA	4,4	3,4	2,8	2,5	2	1,31	0,96	2979
CC	4	2,7	2	1,6	1,1	0,51	0,9	2979
ME	2,9	2,2	1,7	1,5	1,1	0,62	0,72	2979
MO	5,1	3,7	3,1	2,8	2,2	1,47	1,04	2979

14

瑞士乳公牛冷凍精液？
Switzerland dairy bulls frozen semen?

Australia - APR
Belgium (Walloon) - V€G
Canada - LPI
France - ISU
Germany - RZG
Great Britain - PLI
Ireland - EBI
Israel - PD11
Italy - PFT
Japan - NTP
Netherlands - NVI
New Zealand - BW
Nordic Countries - TMI
South Africa - BVI
Spain - ICO
? Switzerland - ISEL
United States - NM$
United States - TPI

- Protein (kg)
- Fat (kg)
- Milk (kg)
- Type
- Longevity
- Udder Health
- Fertility
- Others

0% 20% 40% 60% 80% 100%

15

瑞士商務辦事處e-mail訊息
E-mail info with the staff of Trade Office of Swiss Industries

Gmail

搜尋郵件

撰寫郵件

收件匣   101
已加星號
已延後
重要郵件
寄件備份
草稿   19

瑞士商務辦事處   收件匣 x

Chou Adrianne In-In EDA CUR <adrianne.chou@eda.admin.ch>
寄給 我

趙先生 您好

我是剛剛跟您通電話的周小姐

我找加拿大的Sire Summary當範例給瑞士參考, 如下

再麻煩您幫忙看看是否正確的文件? 謝謝您!

http://westgen.com/sires-list/holstein-proof-sheet/

December 2017   WestGen

16

Slide 17

法規名稱：種畜禽及種原輸入同意文件審核要點
Guidelines for Screening Application for Letter of Approval for the Importation of Breeding Livestock and Poultry and Genetic Resources

（十七）0511.99.91.20-0種畜禽精液。
（十八）0511.99.92.20-9種畜禽胚胎。
（十九）0511.99.99.40-8種畜禽卵子。

三、申請輸入之種畜禽及種原限於以往引進、推廣、銷售之下列品種或品系：
（一）乳牛：
　　1.荷蘭種（Holstein）。
　　2.娟姍（Jersey）。
（二）肉牛：
　　1.布拉曼（Brahman）。
　　2.夏洛萊（Charolais）。
　　3.布蘭格斯（Brangus）。
　　4.德國黃牛（Gelbvieh）。
　　5.利木贊（Limousin）。
　　6.皮埃蒙特（Piedmont）。
　　7.西門塔（Simmental Fleckvieh）。
　　8.和牛（Wagyu）。
　　9.安格斯（Angus）。
　　10.海弗（Hereford）。
（三）豬：

17

Slide 18

農業委員會動植物防疫檢疫局
Bureau of Animal and Plant Health Inspection and Quarantine

資訊　關於本局　重大政策　便民服務　線上申辦　　　　（請輸入關鍵字）
熱門關鍵字：紅火蟻　狂熱病　口

目前位置：首頁 / 輸出入檢疫 / 動物輸出入檢疫 / 輸入動物及動物產品檢疫 / 輸入動物檢疫 / 胚、受精卵、精液、
Materials (Semen and Embryos)

輸入動物檢疫

輸入活動物檢疫程序 ｜ 家畜 Livestock ｜ 家禽 Poultry and Birds ｜ 實驗動物 Laboratory Animals ｜ 水生
Animal ｜ 野生動物 Wildlife Animals ｜ 胚、受精卵、精液、卵子 Genetic Materials (Semen and Embryo

胚、受精卵、精液、卵子 Genetic Materials (Semen and Embryos)

- 1－21 輸入供試驗研究與疫苗製造用雞受精蛋之檢疫條件 Quarantine Requirements for the Importa of Fertilized Chicken Eggs for Research Purposes or Vaccine Production
- 1－23 自美國輸入供試驗研究與疫苗製造用雞受精蛋之檢疫條件 Quarantine Requirements for the Importation of Fertilized Chicken Eggs for Research Purposes or Vaccine Production from the United S
- 3－01 冷凍牛精液輸入檢疫條件 Quarantine Requirements for the Importation of Bovine Semen
- 3－02 牛胚輸入檢疫條件 Quarantine Requirements for the Importation of Bovine Embryos
- 3－03 冷凍豬精液輸入檢疫條件 Quarantine Requirements for the Importation of Porcine Semen
- 3－04 豬胚輸入檢疫條件 Quarantine Requirements for the Importation of Porcine Embryos
- 3－05 羊精液輸入檢疫條件 Quarantine Requirements for the Importation of Caprine and Ovine Seme
- 3－06 馬精液輸入檢疫條件 Quarantine Requirements for the Importation of Equine Semen

18

https://www.baphiq.gov.tw/view.php?catid=12680

Slide 19

冷凍牛精液輸入檢疫條件
Quarantine Requirements for the Importation of Bovine Semen

動物及動物產品輸入檢疫條件第七點附件三之一
冷凍牛精液輸入檢疫條件

行政院農業委員會
中華民國87年9月16日
87農牧字第87050500號公告

一、限自無口蹄疫、牛瘟、牛接觸傳染性胸膜性肺炎、非洲豬瘟等疫病疫區之國家地區輸入。

二、牛精液應產自輸出國政府動物衛生機構監督之人工授精之牛場(註明場名、住址)。

三、採精用之公牛應經輸出國政府動物檢疫機構證明選自過去1年未發生牛布氏桿菌病、牛結核病、惡性卡他爾熱、牛副結核病、藍舌病及假性狂犬病等，和過去半年未發生牛白血病、牛病毒性下痢、牛傳染性鼻氣管炎、牛傳染性膿疱性陰道腔炎(IPV)、弧菌病、滴蟲病及鉤端螺旋體病等傳染病之人工授精之牛場，並於採精前30天內經檢查無任何前述疾病之象徵。惟倘該採精用之公牛已不存在時，應檢附合本條件六各項診斷試驗報告紀錄。

四、牛精液應產自過去1年未發生水疱性口炎之州或相當之行政區域。

- 1. Bovine semen shall be imported only from countries or zones recognized by the Council of Agriculture as free from foot and mouth disease, rinderpest, contagious bovine pleuropneumonia, and African swine fever.

- 3. The donor bulls originate from the artificial insemination centers where brucellosis, bovine tuberculosis, malignant catarrhal fever, Paratuberculosis (Johne's disease), bluetongue, and pseudorabies have not occurred in the previous year; and enzootic bovine leucosis, bovine viral diarrhea, infectious bovine rhinotracheitis, infectious pustular vulvovaginitis, bovine genital campylobacteriosis, trichomoniasis, and leptospirosis have not occurred during the past 6 months. In addition, the donor bulls have been inspected and found free from clinical evidence of the above communicable diseases within 30 days prior to semen collection.

19

Slide 20

2. 分所牧場挑選冷凍精液標準？
2. What Is the Performance Requirements for Dairy Bull Frozen Semen used in our herd?

- **2019　要求標準為TPI 2600以上 (Above TPI 2600)**

品項(item)		劑量(dose)
選性精液 Holstein sexed semen	後裔檢定公牛 Progeny-tested AI bulls	150
	基因體檢測公牛 Genomic young bulls	50
傳統精液 Holstein traditional semen	後裔檢定公牛 Progeny-tested AI bulls	70
	基因體檢測公牛 Genomic young bulls	30
娟姍牛選性精液 Jersey sexed semen		30

20

Slide 21

AVERAGE AND RANGE OF PROOFS FOR RECENTLY PROGENY-TESTED AI BULLS*

美國 荷蘭牛US Holstein

要求標準 2600以上

Above TPI 2600

	PROTEIN		FAT				COMPOSITES						
Bulls	PTAP	PTA%P	PTAF	PTA%F	PTAM	NM$	PTAT	UDC	FLC	PL	DPR	SCS	TPI
TOP 1%	72 (66 to 91)	0.13 (0.12 to 0.19)	96 (89 to 121)	0.31 (0.27 to 0.43)	2418 (2150 to 3801)	819 (768 to 992)	3.33 (3.01 to 4.23)	3.25 (2.99 to 4.15)	2.59 (2.31 to 3.49)	7.6 (7.0 to 9.5)	6.4 (5.6 to 8.5)	2.43 (2.19 to 2.48)	2639 (2578 to 2824)
TOP 5%	60 (53 to 91)	0.10 (0.09 to 0.19)	82 (73 to 121)	0.24 (0.20 to 0.43)	1969 (1672 to 3801)	725 (663 to 992)	2.70 (2.31 to 4.23)	2.77 (2.44 to 4.15)	2.13 (1.85 to 3.49)	6.7 (6.0 to 9.5)	4.9 (4.1 to 8.5)	2.52 (2.19 to 2.58)	2533 (2456 to 2824)
TOP 10%	55 (47 to 91)	0.10 (0.08 to 0.19)	74 (64 to 121)	0.21 (0.16 to 0.43)	1754 (1434 to 3801)	680 (609 to 992)	2.42 (2.01 to 4.23)	2.53 (2.16 to 4.15)	1.91 (1.57 to 3.49)	6.1 (5.3 to 9.5)	4.3 (3.4 to 8.5)	2.56 (2.19 to 2.63)	2476 (2385 to 2824)
TOP 20%	48 (39 to 91)	0.08 (0.06 to 0.19)	66 (54 to 121)	0.17 (0.12 to 0.43)	1519 (1146 to 3801)	625 (535 to 992)	2.13 (1.69 to 4.23)	2.25 (1.79 to 4.15)	1.66 (1.29 to 3.49)	5.4 (4.4 to 9.5)	3.7 (2.6 to 8.5)	2.62 (2.19 to 2.70)	2407 (2298 to 2824)
TOP 30%	44 (34 to 91)	0.07 (0.05 to 0.19)	61 (47 to 121)	0.15 (0.09 to 0.43)	1358 (943 to 3801)	585 (480 to 992)	1.94 (1.45 to 4.23)	2.05 (1.53 to 4.15)	1.49 (1.05 to 3.49)	5.0 (3.8 to 9.5)	3.1 (2.1 to 8.5)	2.65 (2.19 to 2.75)	2359 (2229 to 2824)
TOP 50%	38 (25 to 91)	0.05 (0.02 to 0.19)	52 (34 to 121)	0.12 (0.04 to 0.43)	1127 (621 to 3801)	523 (382 to 992)	1.66 (1.09 to 4.23)	1.76 (1.14 to 4.15)	1.24 (0.69 to 3.49)	4.3 (2.7 to 9.5)	2.4 (0.9 to 8.5)	2.72 (2.19 to 2.84)	2281 (2103 to 2824)
ALL	26 (-68 to 91)	0.02 (-.15 to 0.19)	34 (-58 to 121)	0.04 (-.29 to 0.43)	628 (-2993 to 3801)	378 (-448 to 992)	1.08 (-4.65 to 4.23)	1.14 (-4.42 to 4.15)	0.67 (-2.46 to 3.49)	2.7 (-5.4 to 9.5)	1.0 (-5.8 to 8.5)	2.84 (2.19 to 3.55)	2106 (1244 to 2824)
No. Bulls	7132	7132	7132	7132	7132	7132	5298	5298	5298	7132	7132	7132	5270

*All bulls entered AI since June 2011 (Received first proof in past 4 years)
*December 2018 official proofs from USDA-AIPL and Holstein Association USA
*Must be in NAAB cross-reference system

Slide 22

Breeding robot ready cows

培育適合機器人擠乳機的乳牛

Slide 23

Slide 24

3. 種公牛選配軟體
3. Mating program

Who are the "Superior Males"?

What is the True Genetic Merit?

SELECT SIRES PROVEN SIRES MATING GUIDE

AUGUST 2018

(Detailed sire proof tables for Net Merit $, Milk, Protein, Fat, DPR, Productive Life, WT$, DW$, CW$, %DBH Sim, SCR, Somatic Cell, Mastitis, Stature, Dairy Form, Strength, Body Depth, Rump Width, Rump Angle, Legs Side View, Legs Rear View, Foot Angle, Foot & Legs Score, Feet/Leg Comp, Fore Udder Attachment, Rear Udder Height, Rear Udder Width, Udder Cleft, Udder Depth, Front Teat Place, Rear Teat Place, Udder Comp, Type, GTPI)

25

Select Mating Service (SMS)

Getting Started

A SMS consultant will help your herd identify where to start.

GENETIC SERVICES & GMS

GMS — An ABS Genetic Service · ABS

26

GENOMIC ANIMAL RECORDS

For: TAIWAN LIVESTOCK RESEARCH INSTITUTE
Cust. No: 97003859 - 01
Date: 22/05/2018

ABS GMS

COW ID	PERM ID	MILK	FAT	PRO	FAT %	PRO %	PL	SCS	DPR	HCR	CCR	SCE	DCE	SSB	DSB	STA	STR	DFM	RPA	TRW	RLS	RLR	FTA	FUA	RUH	UCL	UDP	FTP	RTP	TLG	HAP
105F309	00000105F309	963	1	22	-0.12	-0.03	1.4	2.96	-3.2	-0.7	-1.7	6.1	6.2	8.1	6.1	0.06	-0.09	0.42	-0.40	0.16	-0.50	1.08	0.36	0.73	0.90	0.38	0.95	1.01	0.88	-0.99	HH3
105F310	LRIHC105F310	503	-2	17	-0.08	0.01	3.0	2.92	1.7	2.5	2.9	7.0	5.5	6.7	4.6	-0.97	-1.28	-1.09	0.05	-1.36	1.68	-1.22	-1.37	-0.40	-0.23	-0.04	0.12	-0.49	0.13	-0.48	
105F311	00000105F311	1,564	46	43	-0.04	-0.02	2.2	2.91	-1.9	0.5	-1.5	7.8	6.1	7.5	7.3	0.29	-0.10	1.66	0.29	0.55	1.54	-0.25	-0.70	0.40	1.36	0.11	-0.20	-0.14	0.01	1.06	HH0
105F312	00000105F312	978	17	34	-0.07	0.02	1.0	3.00	-0.9	-0.9	-1.0	7.3	6.3	7.3	5.9	-0.24	-0.11	-0.04	-1.04	0.59	-0.01	-1.42	-0.73	0.30	0.85		HH3
105F313	00000105F313	345	5	-1	-0.03	-0.04	2.9	2.95	1.8	2.2	1.9	6.8	6.1	7.6	5.5	-0.15	-0.59	-0.99	-0.12	-1.11	-1.64	1.32	1.00	1.46	1.65	-0.17	1.69	0.09	-0.45	-0.87	
105F315	00000105F315	799	34	28	0.02	0.01	0.8	2.99	-2.2	0.1	-0.8	6.5	5.4	6.4	5.1	0.87	0.05	0.65	-1.49	0.38	-0.44	0.58	0.76	0.90	1.19	0.42	1.19	-0.08	-0.12	-0.23	HH3 HHC
105F316	00000105F316	722	10	18	-0.06	-0.01	2.5	3.10	0.6	0.2	1.2	6.6	5.4	7.7	4.3	1.69	0.43	0.35	-1.38	0.39	-0.11	1.62	1.11	1.48	1.77	-0.11	2.23	-0.76	-0.82	-0.05	
105F317	00000105F317	316	6	7	-0.02	-0.01	2.0	3.03	0.1	0.8	0.8	6.9	5.8	7.1	6.7	0.41	0.30	0.18	0.00	-0.42	-1.63	2.06	0.78	0.39	1.00	0.15	0.23	-0.77	-1.11	1.15	

MATING SIRE RECOMMENDATIONS

For: TAIWAN LIVESTOCK RESEARCH INSTITUTE
Cust. No: 97003859 - 00
Date: 05/10/2018

ABS GMS

COW ID #1	COW ID #2	MO TO BRD	HFR %	1ST CHOICE		G/B %	2ND CHOICE		G/B %	3RD CHOICE		G/B %
98F102	HOTWN0LRIHC98F102	08	14	7HO12611	FERDINAND		7HO12832	SEATTLE		7HO11985	TETRIS	
98F108	HOTWN0000098F108	08	29	7HO11985	TETRIS		7HO11621	MAYFLOWER		29HO18018	DANCER	
98F386	HOTWN0000098F386	08	73	29HO17918	SKYFALL		529HO17573	SILVER		14HO7780	FORCE	
99F201	HOTWN0000099F201	08	17	29HO16701	LA-BRON		7HO12832	SEATTLE		7HO11621	MAYFLOWER	
99F207	HOTWN0000099F207	08	54	529HO17573	SILVER		29HO17918	SKYFALL		14HO7780	FORCE	
99F209	HOTWN0000099F209	08	19	29HO16701	LA-BRON		7HO11985	TETRIS		7HO11985	TETRIS	
99F210	HOTWN0000099F210	08	42	7HO11621	MAYFLOWER		29HO18018	DANCER		29HO17918	SKYFALL	
100F404	HOTWNLRIHC100F404	08	31	7HO12832	SEATTLE	7.0	529HO17573	DANCER	7.5	529HO17573		6.0
100F409	HOTWNLRIHC100F409	08	5	29HO16980	VERSATILE		7HO12026	GREENWAY		29HO16701	LA-BRON	
100F414	HOTWN0000100F414	08	44	29HO18018	DANCER		529HO17573	SILVER		29HO17918	SKYFALL	
100F416	HOTWN0000100F416	08	24	7HO12832	SEATTLE		7HO12611	FERDINAND		529HO17573	SILVER	
101F505	HOTWN0000101F505	08	33	7HO11985	TETRIS		29HO18018	DANCER		529HO17573	SILVER	
101F507	HOTWN0000101F507	08	57	29HO16701	LA-BRON	6.0	14HO7780	FORCE	7.5	14HO7324	GIFIAN	7.0
101F508	HOTWNLRIHC101F508	08	55	529HO17573	SILVER		29HO17918	SKYFALL		14HO7780	FORCE	
101F511	HOTWN0000101F511	08	2	14HO7324	GIFIAN		7HO12026	GREENWAY		29HO16701	LA-BRON	
101F512	HOTWN0000101F512	08	7	29HO16980	VERSATILE		7HO12026	GREENWAY		7HO12832	LA-BRON	
				7HO12026	GREENWAY		7HO12611	FERDINAND		7HO12832	SEATTLE	

27

Mating sire recommendations

Cow	1st choice	LN tank	2nd choice	LN tank	3rd choice	LN tank
牛號	選配精液（第一選擇）	液態氮桶編號	選配精液（第二選擇）	液態氮桶編號	選配精液（第三選擇）	液態氮桶編號
98F102	7HO12611	B1	7HO12832	A10	7HO11985	B1
98F108	7HO11985	A1	7HO11621	B10	29HO18018	B5
98F386	29HO17918	A3	529HO17573	B8	14HO7780	A1
99F201	29HO16701	A8	7HO12832	A10	7HO11621	B10
99F207	529HO175/3	B8	29HO17918	A2	14HO7780	A1
99F209	29HO16701	A8	7HO11621	B10	7HO11985	A1
99F210	7HO11621	B10	29HO18018	B5	29HO17918	A3
100F404	7HO12832	A10	29HO18018	B5	529HO17573	B8
100F409	29HO16980	A2	7HO12026	A2	29HO16701	A8
100F414	29HO18018	B8	529HO17573	B8	29HO17918	A3
100F416	7HO12832	A10	7HO12611	B1	529HO17573	B8
100F419	7HO11985	A1	29HO18018	B5	529HO17573	A10
101F505	29HO16701	A8	14HO7324	A1	14HO7324	
101F507	529HO17573	B8	29HO17918	A3	14HO7780	A1
101F508	14HO7324	A10	7HO12026	A2	29HO16701	A8
101F511	29HO16980	A2	7HO12026	A2	29HO16701	A8
101F512	7HO12026	A2	7HO12611	B1	7HO12832	A10
101F515	7HO12611	B1	7HO12832	A10	7HO11985	A1
102F601	29HO17918	A3	529HO17573	B8	14HO7780	A1
102F603	29HO18018	B5	529HO17573	B8	29HO17918	A3
102F606	7HO12832	A10	29HO18018	B5	529HO17573	B8
102F608	529HO17573	B8	29HO17918	A3	529HO17944	B5
102F611	7HO12611	B1	7HO11621	B10	7HO12832	A10
102F612	29HO18018	B5	529HO17573	B8	29HO17918	A3
102F613	29HO16701	A8	7HO11985	A1	7HO12611	B1

28

結論
Conclusion

- 乳業先進國家均採用綜合性狀選拔指數作為選拔依據,以同時改進乳牛產乳、繁殖、健康與體型性能。

- In the advanced dairy industry countries, the comprehensive trait selection index is used as the basis for selection to improve the milk production, reproduction, health and type of dairy cows.

- 分所將利用乳牛基因體選種技術分析報告,並輔以性狀矯正配種,成為運用示範牧場。

29

Thank you for your participation !