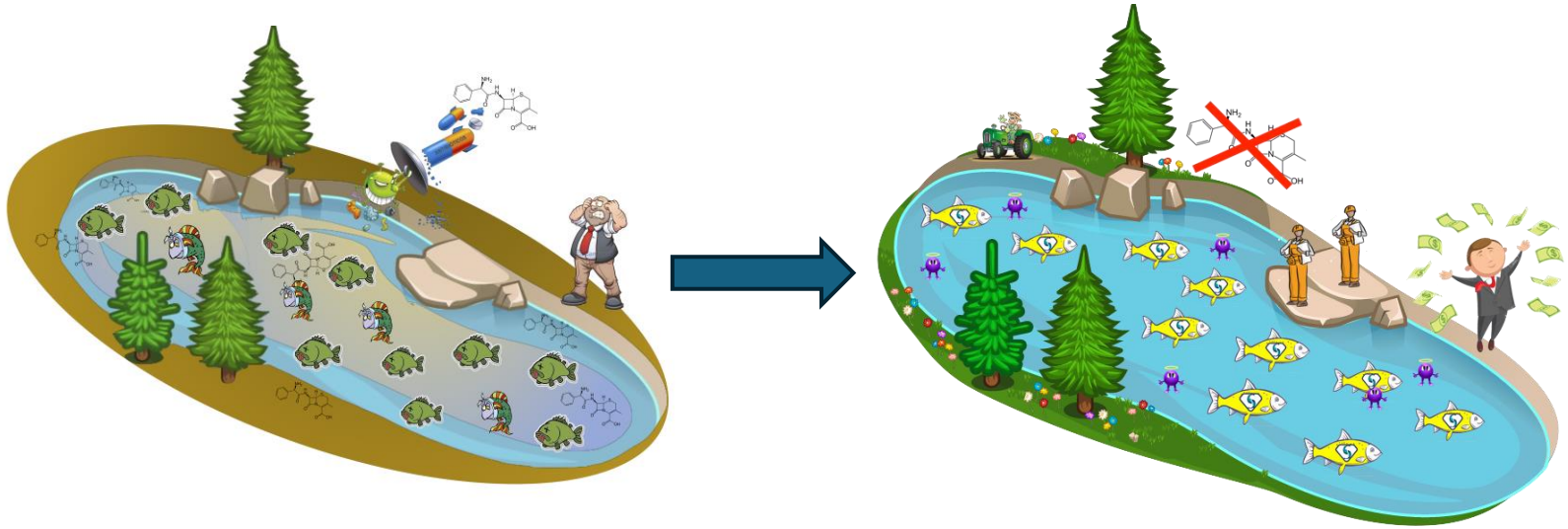
Gestione dei riproduttori e creazione di una progenie resistente

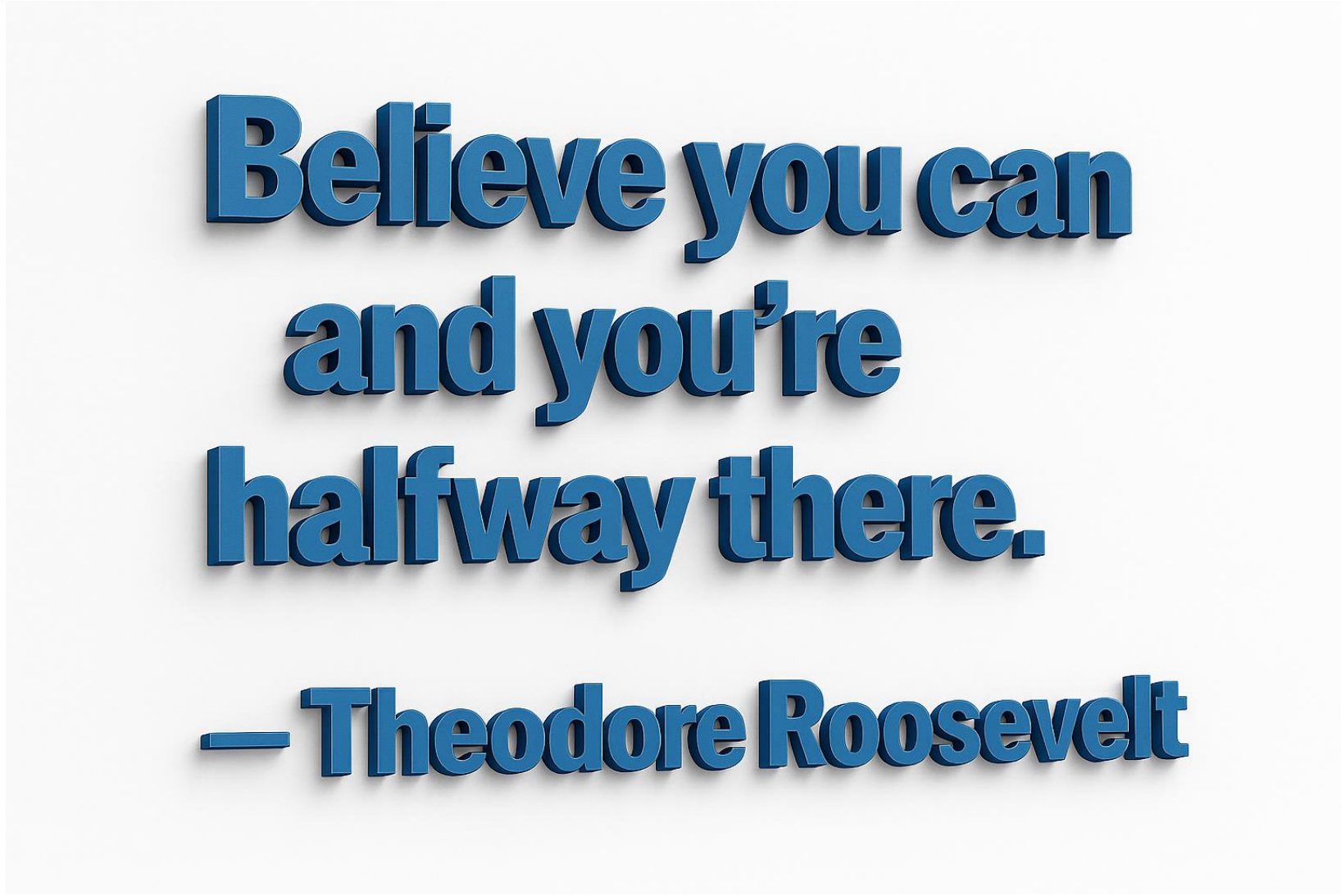
Silvia Colussi e Lucio Fariano

Allevatore = Imprenditore



Miglioramento permanente e additivo

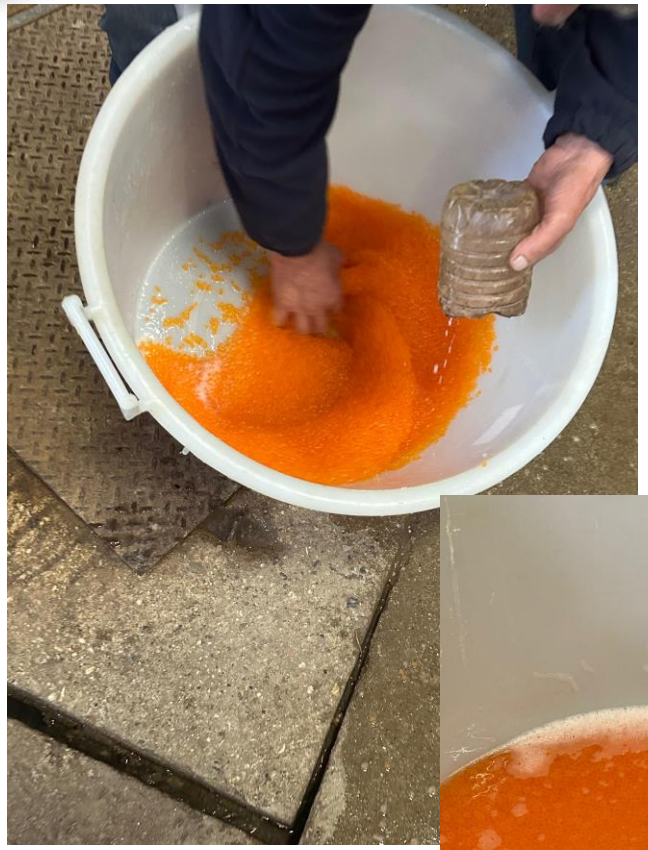
- Riduzione dei costi diretti e indiretti
- Animal welfare
- Prevenzione di focolai e diffusione di agenti zoonotici
- Efficienza delle produzioni
- Riduzione o eliminazione dei trattamenti con ripercussioni positive sulla salute pubblica

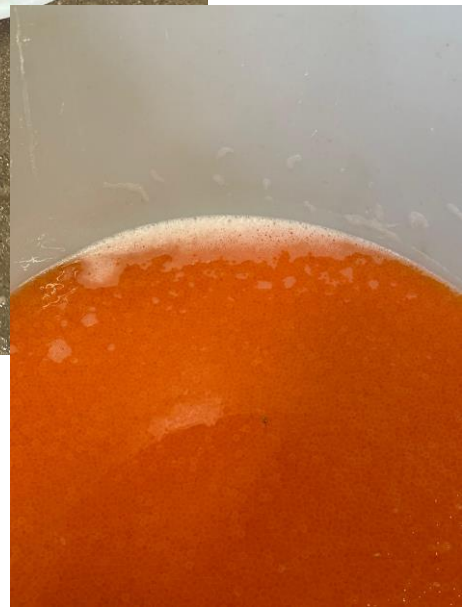

Believe you can
and you're
halfway there.
— Theodore Roosevelt

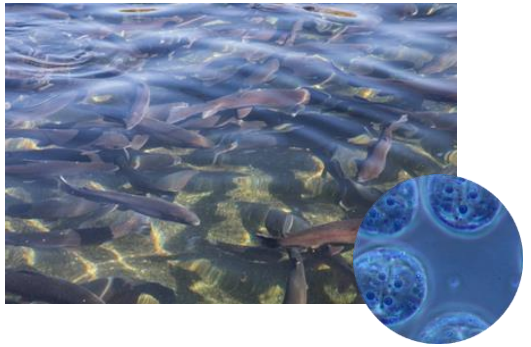
Creazione di linee genetiche autoctone (*Full factorial*)

	Femmine						
Maschi	1	2	3	4	5	...	100
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X
...	X	X	X	X	X	X	X
32	X	X	X	X	X	X	X

Creazione di linee genetiche autoctone







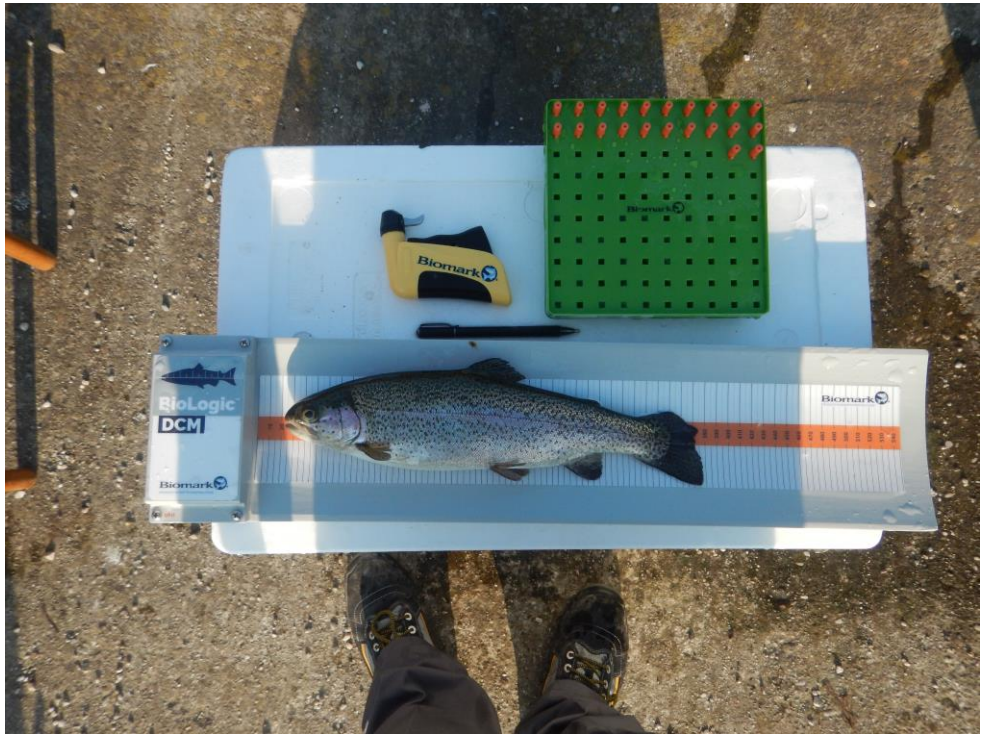
Campionamento

Raccolta campioni
venuti a morte

Campionamento

Tamponi buccali sopravvissuti e riproduttori

Identificazione dei Riproduttori

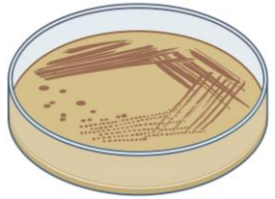


Definizione dei fenotipi

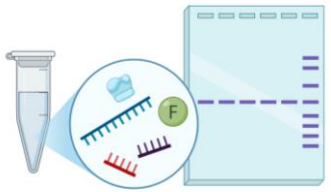
Lattococcosi

Necroscopia

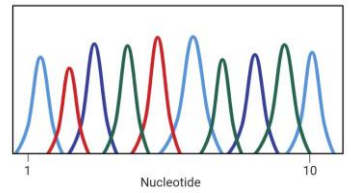
Esame batteriologico (MALDI-TOF)



End-point PCR

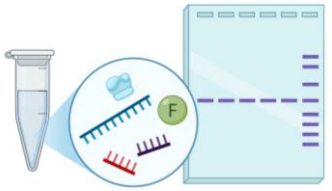


Sanger Sequencing

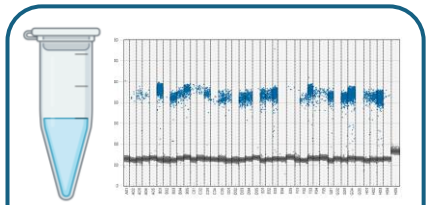


Malattia Proliferativa Renale

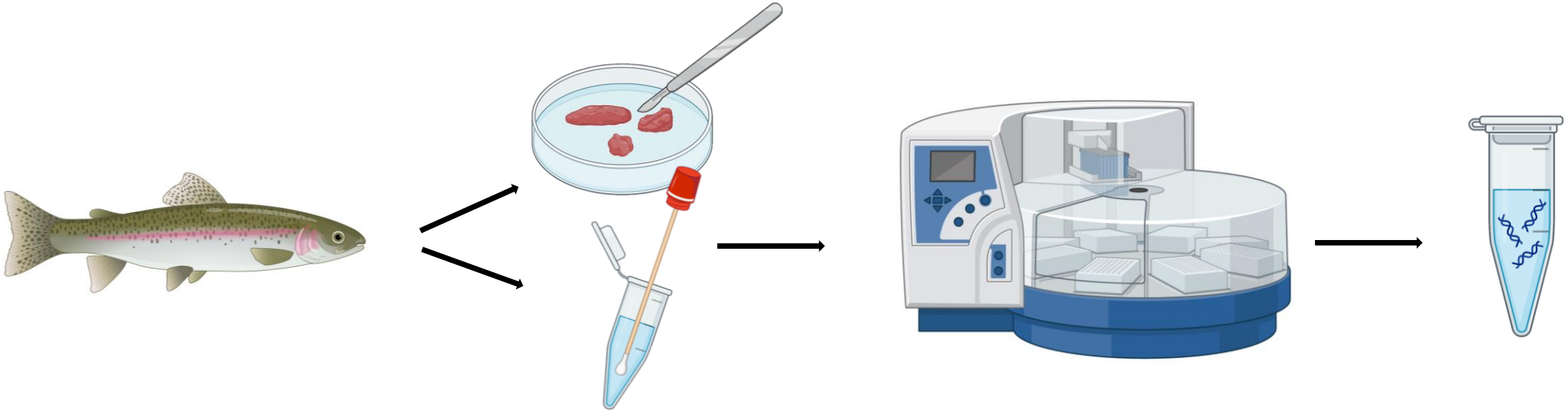
End-point PCR



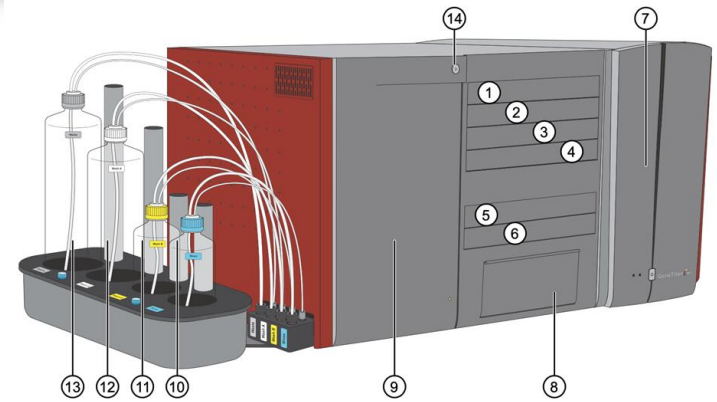
Digital droplet PCR (PKD)



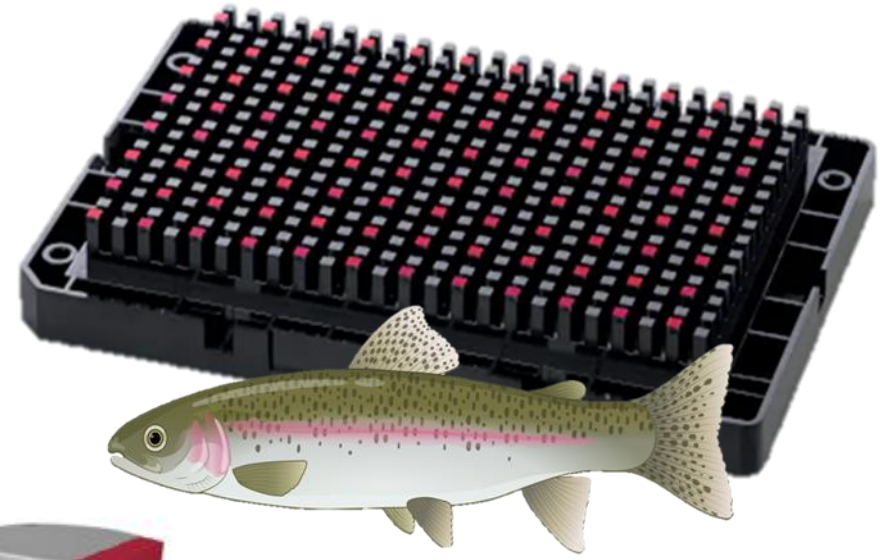
Estrazione del DNA genomico



Genotipizzazione

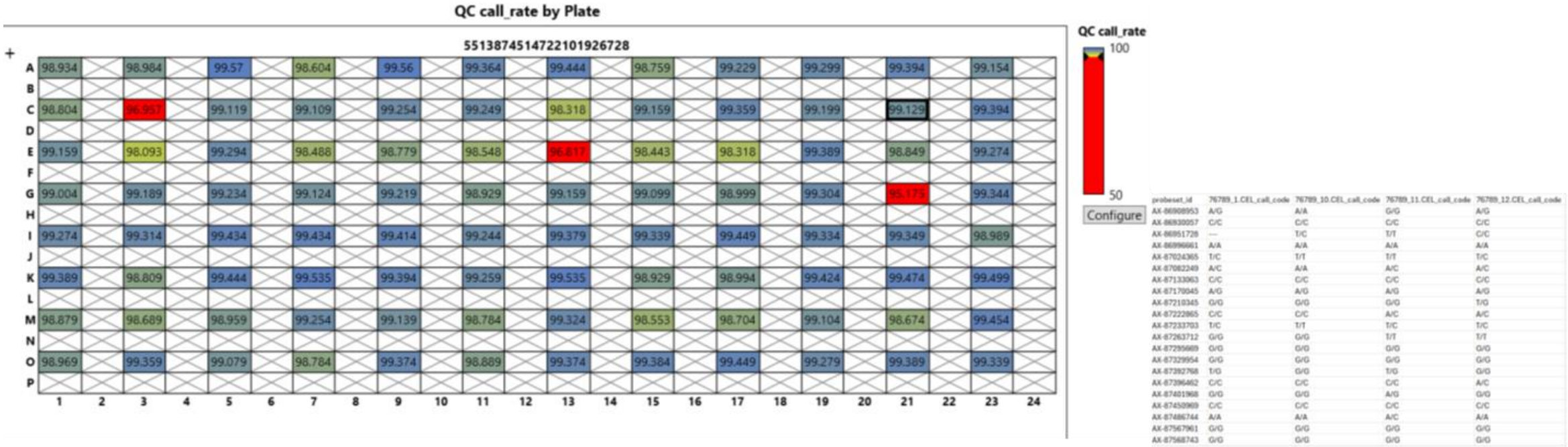


① Input/Output Drawer 1
② Input/Output Drawer 2
③ Input/Output Drawer 3
④ Input/Output Drawer 4
⑤ Input/Output Drawer 5
⑥ Input/Output Drawer 6
⑦ Imaging device
⑧ Trash door to waste chute (for used materials such as plate covers)
⑨ Fluidics unit
⑩ Rinse bottle containing de-ionized (DI) water
⑪ Wash B bottle
⑫ Wash A bottle
⑬ Waste bottle for drained buffers and residual reagents
⑭ Confirmation button (to open/close drawers)



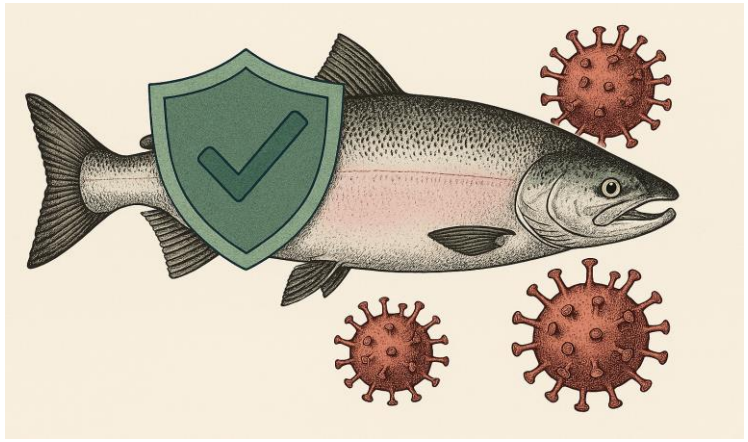
Automated Axiom workflow

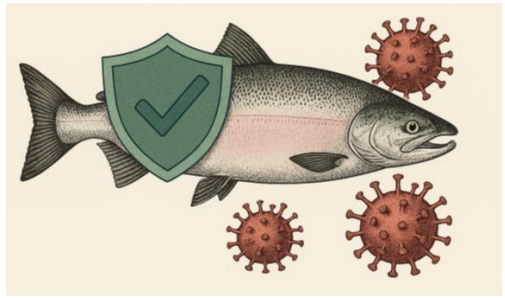
Genotipizzazione

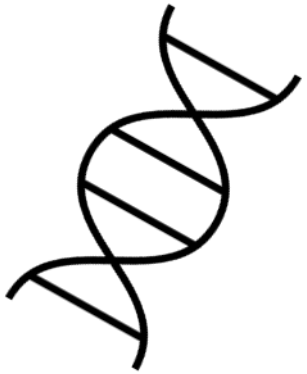


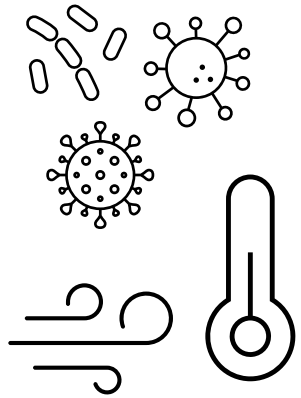
Required output: PLINK file

Evoluzione della selezione









MASS SELECTION

$$P = G + E$$

Elenco dei riproduttori migliori

Geno	TAGid	Barcode	W	sex	L	Estimate	Std..Error	Accuracy	AX.89953412	rank.HS	BothPositive	Indice.EBV	Indice.Rank	NewRank
25TR00342_01	3D6.1534A2EF7C	LV2009292803	387,0		285	0,3523	0,2544	0,6009	GG	69	1	0,3797	61,5	1
25TR01624_01	3D6.1534A2F95B	LV8001940602	405,5	male	301	*0,3265*	*0,2790*	*0,4808*	*GG*	*97*	1	0,3732	67	2
25TR02276_01	3D6.1534A2F19B	LV2009292951	744,0	female	344	0,3888	0,2618	0,5684	GG	39	1	0,3688	96,5	3
25TR03672_01	3D6.1534A2F7FE	LV8001941632	599,5	female	332	0,3215	0,2636	0,5601	GG	106	1	0,3525	100,5	4
25TR00658_01	3D6.1534A2FADB	LV2009292855	397,5		294	0,2730	0,2470	0,6306	AG	208	1	0,3638	113	5
25TR00341_01	3D6.1534A2EFCE	LV2009292804	358,0		286	0,2992	0,2578	0,5861	AG	147	1	0,3308	140	6
25TR00773_01	3D6.1534A2EBE8	LV2009293355	396,5		291	0,2592	0,2219	0,7168	AG	242	1	0,3394	141	7
4290	3D6.1534A2F29E	LV8001944290	678,5	female	349	0,3011	0,2687	0,5360	GG	141	1	0,3247	149	8
25TR01695_01	3D6.1534A2F781	LV8001940292	291,0	male	279	0,3582	0,2551	0,5981	AA	66	1	0,3397	150	9
25TR00289_01	3D6.1534A2F904	LV2009291968	361,0		286	0,3515	0,2683	0,5380	GG	70	1	0,3356	154,5	10
25TR01119_01	3D6.1534A2E7A3	LV2009293071	285,5	male	273	0,2909	0,2406	0,6546	GG	165	1	0,3180	166,5	11
25TR01228_01	3D6.1534A2F4FF	LV8001940361	601,0	male	348	0,2802	0,2617	0,5688	GG	190	1	0,3155	169,5	12
25TR00735_01	3D6.1534A2EBC0	LV2009292515	236,0		263	0,3866	0,2192	0,7251	GG	42	1	0,3440	175,5	13
25TR03395_01	3D6.1534A2FA33	LV8001945253	656,0	female	349	0,3654	0,2543	0,6012	AG	55	1	0,3336	181	14
25TR01295_01	3D6.1534A2ED8E	LV8001940751	434,0	male	317	*0,3165*	*0,2868*	*0,4331*	*AG*	*113*	1	0,3158	186,5	15
25TR00823_01	3D6.1534A2E9C2	LV2009292015	344,0	male	291	0,2351	0,2690	0,5342	GG	337	1	0,3274	187,5	16
25TR00308_01	3D6.1534A2EF9A	LV2009291987	222,0		236	0,4417	0,2648	0,5547	GG	21	1	0,3660	188	17
25TR02905_01	3D6.1534A2E80E	LV8001945555	634,0	female	331	0,2450	0,2716	0,5213	AG	295	1	0,3168	189	18
25TR00283_01	3D6.1534A2F910	LV2009291960	426,5		280	0,2784	0,2742	0,5075	GG	195	1	0,3086	189,5	19
25TR02235_01	3D6.1534A2E940	LV2009292999	945,0	female	375	0,2300	0,2603	0,5753	GG	358	1	0,3345	192	20
25TR01079_01	3D6.1534A2F562	LV2009293130	482,5	male	321	0,2481	0,2731	0,5133	GG	283	1	0,3123	194,5	21
25TR00664_01	3D6.1534A2FB26	LV2009292849	334,5		280	0,2908	0,2175	0,7301	GG	166	1	0,3071	197	22
25TR01407_01	3D6.1534A2ED31	LV8001940613	411,5	male	297	*0,2399*	*0,2810*	*0,4694*	*GG*	*317*	1	0,3137	201	23
25TR01966_01	3D6.1534A2EC0D	LV8001940037	857,5		365	*0,2212*	*0,2782*	*0,4855*	*GG*	*395*	1	0,3477	203,5	24
25TR01525_01	3D6.1534A2F714	LV8001940421	289,5	male	268	0,3583	0,2740	0,5088	GG	65	1	0,3250	206,5	25
25TR00036_01	3D6.1534A2EB72	LV2009291813	409,0		288	0,2756	0,2640	0,5584	GG	202	1	0,3023	207	26
25TR01143_01	3D6.1534A2E7C0	LV2009293045	407,0	male	298	0,2989	0,2460	0,6342	AG	148	1	0,3048	212,5	27
25TR02265_01	3D6.1534A2E959	LV2009292962	532,0	female	323	0,2665	0,2675	0,5419	GG	223	1	0,2967	220,5	28
25TR00207_01	3D6.1534A2F8E6	LV2009292075	347,0		267	0,3408	0,2660	0,5490	GG	85	1	0,3146	221	29
25TR02115_01	3D6.1534A2E9FA	LV2009292732	552,0	female	336	0,2703	0,2530	0,6066	GG	212	1	0,2932	234	30

Selezione dei migliori riproduttori

Riproduzione su base genomica

Progenie

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Simone Lops
Federico Zanella
Antonio Bianco

Paolo Pastorino
Pier Luigi Acutis
Martina Gigi
Giulia Milanese
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Fabio Bondavalli
Alice Gabetti
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Alessandra Maganza
Matteo Riccardo Di Nicola
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