

1 **Table S1.** Full list of genes located within the top five 20-SNP windows associated with
2 fillet yield and harvest weight in Nile tilapia.

CHR	Genes
	Fillet Yield
	caeng3, clcn7, dctn5, drg2, gfer, myo15a, ndufab1, ptx4, rbbp6, rpusd1, slc25a17, syngr3, tnrc6a, usp7, znf598, LOC100708739, LOC100709278, LOC100709546,
04	LOC106099013, LOC109194329, LOC109194368, LOC109202072, LOC112846722, LOC112846774, LOC112846775, LOC112846776, LOC112846777
	adap2, rab11fip4, rhbdl3, suz12, tefm, utp6, LOC100692714, LOC100694065, LOC100702459, LOC100702728, LOC102078754, LOC102079736,
06	LOC102080579, LOC102081387, LOC106098444, LOC106098445, LOC109202587
	ankrd12, mtcl1, ndufv2, rab12, rab31, ralbp1, twsg1, vapa, LOC100689759,
18*	LOC100697261, LOC100712112, LOC100712380, LOC112842925, LOC112842946
	armh1, atp5f1d, bsg, fgf22, fstl3, hcn2, polrmt, rnf126, yjefn3, LOC100689822, LOC100691436, LOC100691703, LOC100691973, LOC100692241, LOC100692510, LOC100692779, LOC100693053, LOC100693138, LOC100693321, LOC100693591, LOC100694214, LOC100701614, LOC100710294, LOC100710826, LOC100711090, LOC100711361, LOC100711633, LOC100711902, LOC100712172, LOC100712441, LOC102083054, LOC112843764, LOC112843838, LOC112843928, LOC112843936, LOC112844020, LOC112844021
23	

	LOC100693441, LOC100693700, LOC100693969, LOC100694244,
7	LOC100694510, LOC100700474, LOC100700740, LOC102080922, LOC109202944, LOC109202945, LOC112847395
Harvest weight	
	calcr1, gulp1, LOC100708152, LOC100708695, LOC100709501, LOC100710924,
16	LOC100711189, LOC100712002, LOC102081885, LOC102082249, LOC102082787, LOC109197478, LOC109197703, LOC112844144
	dnai2, ints3, npr1, LOC100695994, LOC100696257, LOC100696522, LOC100708518, LOC100708787, LOC100709056, LOC102078020, LOC102078460, LOC102078532, LOC102078821, LOC102082218,
22	LOC106098120, LOC106098122, LOC109196337, LOC112841743, LOC112843434, LOC112843499, LOC112843500, LOC112843592, LOC112843649, LOC112843656, LOC112843662, LOC112843664
	endog, entr1, med27, phf19, sohlh1, ttf1, LOC100699959, LOC100700504, LOC100709101, LOC100709370, LOC100710177, LOC100710439, LOC100710705, LOC100711238, LOC100711509, LOC100711782, LOC100712047, LOC102080147, LOC102080679, LOC106096498,
12	LOC109195001, LOC109195153, LOC109195154, LOC109195155, LOC109195156, LOC109195229, LOC109195287, LOC112841840, LOC112841872, LOC112841898, LOC112848298, LOC112848299, LOC112848300
	cpsf2, extl3, fut8, riox1, slc24a4, tmem121, LOC100694334, LOC100711926,
15	LOC106098308
18*	-

Table S2. Number of animals genotyped for different sized Nile tilapia breeding populations (SBP) for cost evaluation.

Animals	SBP1	SBP2	SBP3	SBP4	SBP5	SBP6	SBP7
Parents	150	150	150	150	150	150	150
Reference Population	2,000	2,500	3,000	3,500	4,000	4,500	5,000
Selection Candidates	2,000	2,500	3,000	3,500	4,000	4,500	5,000
Total	4,150	5,150	6,150	7,150	8,150	9,150	10,150

Table S3. Genotyping cost (US\$) using different genotyping strategies for different sized Nile tilapia breeding populations (SBP).

Scenarios	SBP1	SBP2	SBP3	SBP4	SBP5	SBP6	SBP7
A - HD (ALL)	207,500	231,750	249,075	260,618	267,361	270,149	269,706
B - HD (P + 20% RP) + 3K (80% RP + SC)	117,500	145,000	172,500	200,000	227,500	255,000	282,500
C - HD (P + 20% RP) + 1K (80% RP + SC)	99,500	122,500	145,500	168,500	191,500	214,500	237,500
D - HD (P + 20% RP) + 0.5K (80% RP + SC)	63,500	77,500	91,500	105,500	119,500	133,500	147,500