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## LAMPIRAN

### Oneway

						95% Confidence Interval for	
						Lower Bound	Upper Bound
DAV	Bali	3	19,1067	,36638	,21153	18,1965	20,0168
	Brahman	3	20,7900	,31765	,18339	20,0009	21,5791
	Limousin	3	21,1300	,74357	,42930	19,2829	22,9771
	Simental	3	23,5300	,77078	,44501	21,6153	25,4447
	Angus	3	19,7933	,61978	,35783	18,2537	21,3330
DCL	Bali	3	31,7100	1,33180	,76892	28,4016	35,0184
	Brahman	3	38,3000	1,13221	,65368	35,4874	41,1126
	Limousin	3	38,5600	1,67275	,96576	34,4047	42,7153
	Simental	3	45,7867	1,80140	1,04004	41,3117	50,2616
	Angus	3	37,8600	1,21112	,69924	34,8514	40,8686
DSL	Bali	3	14,3067	,48521	,28014	13,1013	15,5120
	Brahman	3	14,8433	,39273	,22674	13,8677	15,8189
	Limousin	3	15,4233	,31086	,17947	14,6511	16,1955
	Simental	3	16,4833	,60583	,34978	14,9784	17,9883
	Angus	3	14,2467	,09292	,05364	14,0159	14,4775
VAP	Bali	3	46,5733	1,49038	,86047	42,8710	50,2756
	Brahman	3	51,2767	,66666	,38490	49,6206	52,9327
	Limousin	3	50,7233	1,78298	1,02941	46,2942	55,1525
	Simental	3	56,0000	1,46380	,84512	52,3637	59,6363
	Angus	3	48,6000	1,82395	1,05306	44,0691	53,1309
VCL	Bali	3	77,3200	4,50081	2,59854	66,1394	88,5006
	Brahman	3	93,8800	2,31234	1,33503	88,1358	99,6242
	Limousin	3	91,9867	4,05712	2,34238	81,9082	102,0651
	Simental	3	108,4000	3,37787	1,95021	100,0089	116,7911
	Angus	3	92,2833	4,18354	2,41537	81,8908	102,6758
VSL	Bali	3	34,8700	1,55743	,89918	31,0011	38,7389
	Brahman	3	36,9233	,76970	,44438	35,0113	38,8354
	Limousin	3	37,1267	,83098	,47977	35,0624	39,1909
	Simental	3	39,3167	1,26512	,73042	36,1739	42,4594
	Angus	3	35,0367	,64825	,37427	33,4263	36,6470
STR	Bali	3	,7500	,01000	,00577	,7252	,7748
		3	,7200	,02000	,01155	,6703	,7697
		3	,7333	,01155	,00667	,7046	,7620
		3	,7000	,01000	,00577	,6752	,7248
		3	,7233	,02309	,01333	,6660	,7807



						95% Confidence Interval for	
						Lower Bound	Upper Bound
LIN	Bali	3	,4533	,00577	,00333	,4390	,4677
	Brahman	3	,3933	,00577	,00333	,3790	,4077
	Limousin	3	,4033	,01155	,00667	,3746	,4320
	Simental	3	,3633	,01155	,00667	,3346	,3920
	Angus	3	,3800	,01000	,00577	,3552	,4048
WOB	Bali	3	,6033	,01528	,00882	,5654	,6413
	Brahman	3	,5433	,00577	,00333	,5290	,5577
	Limousin	3	,5533	,00577	,00333	,5390	,5677
	Simental	3	,5167	,00577	,00333	,5023	,5310
	Angus	3	,5267	,00577	,00333	,5123	,5410
ALH	Bali	3	4,7933	,15275	,08819	4,4139	5,1728
	Brahman	3	5,6833	,12503	,07219	5,3727	5,9939
	Limousin	3	5,4667	,13650	,07881	5,1276	5,8058
	Simental	3	5,8200	,04583	,02646	5,7062	5,9338
	Angus	3	5,4700	,28844	,16653	4,7535	6,1865
BCF	Bali	3	22,0867	1,37500	,79386	18,6710	25,5024
	Brahman	3	21,3567	,44411	,25641	20,2534	22,4599
	Limousin	3	22,2633	,79255	,45758	20,2945	24,2321
	Simental	3	22,0200	,19000	,10970	21,5480	22,4920
	Angus	3	22,1267	,18502	,10682	21,6670	22,5863



DAV	Bali	18,76	19,49
	Brahman	20,52	21,14
	Limousin	20,60	21,98
	FH	22,64	23,98
	Angus	19,08	20,20
DCL	Bali	30,42	33,08
	Brahman	37,53	39,60
	Limousin	37,27	40,45
	FH	43,79	47,29
	Angus	36,54	38,92
DSL	Bali	13,83	14,80
	Brahman	14,39	15,08
	Limousin	15,21	15,78
	FH	15,86	17,07
	Angus	14,17	14,35
VAP	Bali	44,86	47,57
	Brahman	50,55	51,86
	Limousin	49,15	52,66
	FH	54,42	57,31
	Angus	46,66	50,28
VCL	Bali	72,24	80,81
	Brahman	92,53	96,55
	Limousin	88,40	96,39
	FH	104,50	110,40
	Angus	88,41	96,72
VSL	Bali	33,11	36,07
	Brahman	36,04	37,45
	Limousin	36,32	37,98
	FH	38,29	40,73
	Angus	34,54	35,77
STR	Bali	,74	,76
	Brahman	,70	,74
	Limousin	,72	,74
		,69	,71
		,71	,75



LIN	Bali	,45	,46
	Brahman	,39	,40
	Limousin	,39	,41
	Simental	,35	,37
	FH	,35	,37
	Angus	,37	,39
WOB	Bali	,59	,62
	Brahman	,54	,55
	Limousin	,54	,55
	Simental	,55	,56
	FH	,51	,52
	Angus	,52	,53
ALH	Bali	4,66	4,96
	Brahman	5,56	5,81
	Limousin	5,56	5,81
	Simental	5,32	5,59
	FH	5,77	5,86
	Angus	5,23	5,79
BCF	Bali	20,71	23,46
	Brahman	20,87	21,74
	Limousin	20,87	21,74
	Simental	21,51	23,09
	FH	21,81	22,18
	Angus	21,94	22,31





## ANOVA

		Sum of				
DAV	Between Groups	35,175	5	7,035	19,463	,000
	Within Groups	4,337	12	,361		
DCL	Between Groups	308,482	5	61,696	26,252	,000
	Within Groups	28,202	12	2,350		
DSL	Between Groups	10,928	5	2,186	13,152	,000
	Within Groups	1,994	12	,166		
VAP	Between Groups	149,612	5	29,922	14,027	,000
	Within Groups	25,598	12	2,133		
VCL	Between Groups	1471,510	5	294,302	18,330	,000
	Within Groups	192,670	12	16,056		
VSL	Between Groups	39,682	5	7,936	7,976	,002
	Within Groups	11,941	12	,995		
STR	Between Groups	,004	5	,001	3,610	,032
	Within Groups	,003	12	,000		
LIN	Between Groups	,014	5	,003	15,706	,000
	Within Groups	,002	12	,000		
WOB	Between Groups	,014	5	,003	21,852	,000
	Within Groups	,002	12	,000		
ALH	Between Groups	1,921	5	,384	14,070	,000
	Within Groups	,328	12	,027		
BCF	Between Groups	1,569	5	,314	,553	,734
	Within Groups	6,815	12	,568		

## Post Hoc Tests



Multiple Comparisons

LSD

			Mean Difference		
DAV	Bali	Brahman	-1,68333*	,49088	,005
		Limousin	-2,02333*	,49088	,001
		Simental	-4,42333*	,49088	,000
		FH	-4,42333*	,49088	,000
		Angus	-,68667	,49088	,187
	Brahman	Bali	1,68333*	,49088	,005
		Limousin	-,34000	,49088	,502
		Simental	-2,74000*	,49088	,000
		FH	-2,74000*	,49088	,000
		Angus	,99667	,49088	,065
	Limousin	Bali	2,02333*	,49088	,001
		Brahman	,34000	,49088	,502
		Simental	-2,40000*	,49088	,000
		FH	-2,40000*	,49088	,000
		Angus	1,33667*	,49088	,019
	Simental	Bali	4,42333*	,49088	,000
		Brahman	2,74000*	,49088	,000
		Limousin	2,40000*	,49088	,000
		FH	2,40000*	,49088	,000
		Angus	3,73667*	,49088	,000
FH	Bali	,68667	,49088	,187	
	Brahman	-,99667	,49088	,065	
	Limousin	-1,33667*	,49088	,019	
	Simental	-1,33667*	,49088	,019	
	Angus	-3,73667*	,49088	,000	
Angus	Bali	1,15667*	,49088	,036	
	Brahman	-,52667	,49088	,304	
	Limousin	-,86667	,49088	,103	
	Simental	-,86667	,49088	,103	
	FH	-3,26667*	,49088	,000	
DCL	Bali	Brahman	-6,59000*	1,25170	,000
		Limousin	-6,85000*	1,25170	,000
		Simental	-6,85000*	1,25170	,000
		FH	-14,07667*	1,25170	,000
		Angus	-6,15000*	1,25170	,000
	Brahman	Bali	6,59000*	1,25170	,000
		Limousin	-,26000	1,25170	,839
		Simental	-7,48667*	1,25170	,000
		FH	-7,48667*	1,25170	,000
		Angus	,44000	1,25170	,731
	Limousin	Bali	6,85000*	1,25170	,000
		Brahman	,26000	1,25170	,839
		Simental	-7,22667*	1,25170	,000
		FH	-7,22667*	1,25170	,000
		Angus	,70000	1,25170	,586



Multiple Comparisons

LSD

			Mean Difference (t)		
DCL	Simental	Bali	14,07667*	1,25170	,000
		Brahman	7,48667*	1,25170	,000
		Limousin	7,22667*	1,25170	,000
		FH	7,92667*	1,25170	,000
		Angus	7,92667*	1,25170	,000
	FH	Bali	6,15000*	1,25170	,000
		Brahman	-,44000	1,25170	,731
		Limousin	-,70000	1,25170	,586
		Simental	-,70000	1,25170	,586
		Angus	-7,92667*	1,25170	,000
	Angus	Bali	4,77667*	1,25170	,002
		Brahman	-1,81333	1,25170	,173
		Limousin	-2,07333	1,25170	,124
		Simental	-2,07333	1,25170	,124
		FH	-9,30000*	1,25170	,000
DSL	Bali	Brahman	-,53667	,33284	,133
		Limousin	-1,11667*	,33284	,006
		Simental	-2,17667*	,33284	,000
		FH	-2,17667*	,33284	,000
		Angus	,06000	,33284	,860
	Brahman	Bali	,53667	,33284	,133
		Limousin	-,58000	,33284	,107
		Simental	-1,64000*	,33284	,000
		FH	-1,64000*	,33284	,000
		Angus	,59667	,33284	,098
	Limousin	Bali	1,11667*	,33284	,006
		Brahman	,58000	,33284	,107
		Simental	-1,06000*	,33284	,008
		FH	-1,06000*	,33284	,008
		Angus	1,17667*	,33284	,004
	Simental	Bali	2,17667*	,33284	,000
		Brahman	1,64000*	,33284	,000
		Limousin	1,06000*	,33284	,008
		FH	1,06000*	,33284	,008
		Angus	2,23667*	,33284	,000
	FH	Bali	-,06000	,33284	,860
		Brahman	-,59667	,33284	,098
		Limousin	-1,17667*	,33284	,004
		Simental	-1,17667*	,33284	,004
		Angus	-2,23667*	,33284	,000
Angus	Bali	,25333	,33284	,461	
	Brahman	-,28333	,33284	,411	
	Limousin	-,86333*	,33284	,023	
	Simental	-,86333*	,33284	,023	
	FH	-1,92333*	,33284	,000	



Multiple Comparisons

LSD

			Mean Difference (LSD)		
VAP	Bali	Brahman	-4,70333*	1,19253	,002
		Limousin	-4,15000*	1,19253	,005
		Simental	-9,42667*	1,19253	,000
		FH	-2,02667	1,19253	,115
		Angus	-2,02667	1,19253	,115
	Brahman	Bali	4,70333*	1,19253	,002
		Limousin	,55333	1,19253	,651
		Simental	-4,72333*	1,19253	,002
		FH	-4,72333*	1,19253	,002
		Angus	2,67667*	1,19253	,044
	Limousin	Bali	4,15000*	1,19253	,005
		Brahman	-,55333	1,19253	,651
		Simental	-5,27667*	1,19253	,001
		FH	-5,27667*	1,19253	,001
		Angus	2,12333	1,19253	,100
	Simental	Bali	9,42667*	1,19253	,000
		Brahman	4,72333*	1,19253	,002
		Limousin	5,27667*	1,19253	,001
		FH	5,27667*	1,19253	,001
		Angus	7,40000*	1,19253	,000
FH	Bali	2,02667	1,19253	,115	
	Brahman	-2,67667*	1,19253	,044	
	Limousin	-2,12333	1,19253	,100	
	Simental	-2,12333	1,19253	,100	
	Angus	-7,40000*	1,19253	,000	
Angus	Bali	3,87333*	1,19253	,007	
	Brahman	-,83000	1,19253	,500	
	Limousin	-,27667	1,19253	,820	
	Simental	-,27667	1,19253	,820	
	FH	-5,55333*	1,19253	,001	
VCL	Bali	Brahman	-16,56000*	3,27168	,000
		Limousin	-14,66667*	3,27168	,001
		Simental	-31,08000*	3,27168	,000
		FH	-31,08000*	3,27168	,000
		Angus	-14,96333*	3,27168	,001
	Brahman	Bali	16,56000*	3,27168	,000
		Limousin	1,89333	3,27168	,573
		Simental	-14,52000*	3,27168	,001
		FH	-14,52000*	3,27168	,001
		Angus	1,59667	3,27168	,634
	Limousin	Bali	14,66667*	3,27168	,001
		Brahman	-1,89333	3,27168	,573
		Simental	-16,41333*	3,27168	,000
		FH	-16,41333*	3,27168	,000
		Angus	-,29667	3,27168	,929



Multiple Comparisons

LSD

			Mean Difference (t)			
VCL	Simental	Bali	31,08000*	3,27168	,000	
		Brahman	14,52000*	3,27168	,001	
		Limousin	16,41333*	3,27168	,000	
		FH	16,11667*	3,27168	,000	
	FH	Bali	14,96333*	3,27168	,001	
		Brahman	-1,59667	3,27168	,634	
		Limousin	,29667	3,27168	,929	
		Simental	-16,11667*	3,27168	,000	
	Angus	Bali	12,90333*	3,27168	,002	
		Brahman	-3,65667	3,27168	,286	
		Limousin	-1,76333	3,27168	,600	
		Simental	-18,17667*	3,27168	,000	
	VSL	Bali	Brahman	-2,05333*	,81448	,027
			Limousin	-2,25667*	,81448	,017
			Simental	-4,44667*	,81448	,000
			FH	-1,6667	,81448	,841
Brahman		Bali	2,05333*	,81448	,027	
		Limousin	-,20333	,81448	,807	
		Simental	-2,39333*	,81448	,012	
		FH	1,88667*	,81448	,039	
Limousin		Bali	2,25667*	,81448	,017	
		Brahman	,20333	,81448	,807	
		Simental	-2,19000*	,81448	,020	
		FH	2,09000*	,81448	,025	
Simental		Bali	4,44667*	,81448	,000	
		Brahman	2,39333*	,81448	,012	
		Limousin	2,19000*	,81448	,020	
		FH	4,28000*	,81448	,000	
FH		Bali	,16667	,81448	,841	
		Brahman	-1,88667*	,81448	,039	
		Limousin	-2,09000*	,81448	,025	
		Simental	-4,28000*	,81448	,000	
Angus	Bali	1,55667	,81448	,080		
	Brahman	-,49667	,81448	,553		
	Limousin	-,70000	,81448	,407		
	FH	-2,89000*	,81448	,004		



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Multiple Comparisons

LSD

			Mean Difference (μ)		
STR	Bali	Brahman	,03000*	,01232	,031
		Limousin	,01667	,01232	,201
		Simental	,05000*	,01232	,002
		FH	,02667	,01232	,051
		Angus			
	Brahman	Bali	-,03000*	,01232	,031
		Limousin	-,01333	,01232	,301
		Simental	,02000	,01232	,131
		FH	-,00333	,01232	,791
		Angus			
	Limousin	Bali	-,01667	,01232	,201
		Brahman	,01333	,01232	,301
		Simental	,03333*	,01232	,019
		FH	,01000	,01232	,433
		Angus			
	Simental	Bali	-,05000*	,01232	,002
		Brahman	-,02000	,01232	,131
		Limousin	-,03333*	,01232	,019
		FH	-,02333	,01232	,083
		Angus			
FH	Bali	-,02667	,01232	,051	
	Brahman	,00333	,01232	,791	
	Limousin	-,01000	,01232	,433	
	Simental	,02333	,01232	,083	
	Angus				
Angus	Bali	-,03000*	,01232	,031	
	Brahman	,00000	,01232	1,000	
	Limousin	-,01333	,01232	,301	
	Simental	-,02000	,01232	,131	
	Angus				
LIN	Bali	Brahman	,06000*	,01089	,000
		Limousin	,05000*	,01089	,001
		Simental	,09000*	,01089	,000
		FH	,07333*	,01089	,000
		Angus			
	Brahman	Bali	-,06000*	,01089	,000
		Limousin	-,01000	,01089	,376
		Simental	,03000*	,01089	,017
		FH	,01333	,01089	,244
		Angus			
	Limousin	Bali	-,05000*	,01089	,001
		Brahman	,01000	,01089	,376
		Simental	,04000*	,01089	,003
		FH	,02333	,01089	,053
		Angus			



Multiple Comparisons

LSD

			Mean Difference (LSD)			
LIN	Simental	Bali	-,09000*	,01089	,000	
		Brahman	-,03000*	,01089	,017	
		Limousin	-,04000*	,01089	,003	
		FH	-,04000*	,01089	,003	
	FH	Bali	Angus	-,01667	,01089	,152
			Bali	-,07333*	,01089	,000
			Brahman	-,01333	,01089	,244
			Limousin	-,01333	,01089	,244
	Angus	Simental	FH	-,02333	,01089	,053
			Angus	,01667	,01089	,152
			Bali	-,05000*	,01089	,001
			Brahman	,01000	,01089	,376
WOB	Bali	Limousin	,00000	,01089	1,000	
		Simental	,04000*	,01089	,003	
		Brahman	,06000*	,00923	,000	
		Limousin	,05000*	,00923	,000	
	Brahman	Bali	Simental	,08667*	,00923	,000
			FH	,07667*	,00923	,000
			Angus	-,06000*	,00923	,000
			Limousin	-,01000	,00923	,300
	Limousin	Simental	FH	,02667*	,00923	,014
			Angus	,01667	,00923	,096
			Bali	-,05000*	,00923	,000
			Brahman	,01000	,00923	,300
Simental	Bali	FH	,03667*	,00923	,002	
		Angus	,02667*	,00923	,014	
		Brahman	-,08667*	,00923	,000	
		Limousin	-,02667*	,00923	,014	
FH	Bali	FH	-,03667*	,00923	,002	
		Angus	-,01000	,00923	,300	
		Brahman	-,07667*	,00923	,000	
		Limousin	-,01667	,00923	,096	
Angus	Bali	Simental	-,02667*	,00923	,014	
		FH	-,04333*	,00923	,001	
		Brahman	,01667	,00923	,096	
		Limousin	,00667	,00923	,484	
		FH	,04333*	,00923	,001	



Multiple Comparisons

LSD

			Mean Difference (t)		
ALH	Bali	Brahman	-,89000*	,13492	,000
		Limousin	-,67333*	,13492	,000
		Simental	-1,02667*	,13492	,000
		FH	-,67667*	,13492	,000
		Angus	-,21333	,13492	,140
	Brahman	Bali	,89000*	,13492	,000
		Limousin	,21667	,13492	,134
		Simental	-,13667	,13492	,331
		FH	-,13667	,13492	,331
		Angus	,21333	,13492	,140
	Limousin	Bali	,67333*	,13492	,000
		Brahman	-,21667	,13492	,134
		Simental	-,35333*	,13492	,022
		FH	-,35333*	,13492	,022
		Angus	-,00333	,13492	,981
	Simental	Bali	1,02667*	,13492	,000
		Brahman	,13667	,13492	,331
		Limousin	,35333*	,13492	,022
		FH	,35333*	,13492	,022
		Angus	,35000*	,13492	,023
FH	Bali	,67667*	,13492	,000	
	Brahman	-,21333	,13492	,140	
	Limousin	,00333	,13492	,981	
	Simental	,00333	,13492	,981	
	Angus	-,35000*	,13492	,023	
Angus	Bali	,51000*	,13492	,003	
	Brahman	-,38000*	,13492	,016	
	Limousin	-,16333	,13492	,249	
	Simental	-,16333	,13492	,249	
	FH	-,51667*	,13492	,002	
BCF	Bali	Brahman	,73000	,61530	,258
		Limousin	-,17667	,61530	,779
		Simental	-,17667	,61530	,779
		FH	,06667	,61530	,916
		Angus	-,04000	,61530	,949
	Brahman	Bali	-,73000	,61530	,258
		Limousin	-,90667	,61530	,166
		Simental	-,90667	,61530	,166
		FH	-,66333	,61530	,302
		Angus	-,77000	,61530	,235
	Limousin	Bali	,17667	,61530	,779
		Brahman	,90667	,61530	,166
		Simental	,90667	,61530	,166
		FH	,24333	,61530	,699
		Angus	,13667	,61530	,828





Multiple Comparisons

LSD

			Mean Difference (I-J)		
BCF	Simental	Bali	-,06667	,61530	,916
		Brahman	,66333	,61530	,302
		Limousin	-,24333	,61530	,699
		FH	-,10667	,61530	,865
		Angus			
	FH	Bali	,04000	,61530	,949
		Brahman	,77000	,61530	,235
		Limousin	-,13667	,61530	,828
		Simental	,10667	,61530	,865
		Angus			
	Angus	Bali	,04000	,61530	,949
		Brahman	,77000	,61530	,235
Limousin		-,13667	,61530	,828	
Simental		,10667	,61530	,865	
FH					



Multiple Comparisons

LSD

			Lower Bound	Upper Bound
DAV	Bali	Brahman	-2,7529	-,6138
		Limousin	-3,0929	-,9538
		Simental	-5,4929	-3,3538
		FH	-1,7562	,3829
		Angus	,6138	2,7529
	Brahman	Bali	-1,4095	,7295
		Limousin	-3,8095	-1,6705
		Simental	-,0729	2,0662
		FH	,9538	3,0929
		Angus	-,7295	1,4095
	Limousin	Bali	-3,4695	-1,3305
		Brahman	,2671	2,4062
		Simental	3,3538	5,4929
		FH	1,6705	3,8095
		Angus	1,3305	3,4695
	Simental	Bali	2,6671	4,8062
		Brahman	-3,829	1,7562
		Limousin	-2,0662	,0729
		FH	-2,4062	-,2671
		Angus	-4,8062	-2,6671
FH	Bali	,0871	2,2262	
	Brahman	-1,5962	,5429	
	Limousin	-1,9362	,2029	
	Simental	-4,3362	-2,1971	
	Angus	-9,3172	-3,8628	
DCL	Bali	Brahman	-9,5772	-4,1228
		Limousin	-16,8039	-11,3494
		Simental	-8,8772	-3,4228
		FH	-8,8772	-3,4228
		Angus	3,8628	9,3172
	Brahman	Bali	-2,9872	2,4672
		Limousin	-10,2139	-4,7594
		Simental	-2,2872	3,1672
		FH	4,1228	9,5772
		Angus	-2,4672	2,9872
	Limousin	Bali	-9,9539	-4,4994
		Brahman	-2,0272	3,4272
		Simental		
		FH		
		Angus		



Multiple Comparisons

LSD

			Lower Bound	Upper Bound	
DCL	Simental	Bali	11,3494	16,8039	
		Brahman	4,7594	10,2139	
		Limousin	4,4994	9,9539	
		FH	5,1994	10,6539	
		Angus	3,4228	8,8772	
	FH	Bali	-3,1672	2,2872	
		Brahman	-3,4272	2,0272	
		Limousin	-10,6539	-5,1994	
		Angus	2,0494	7,5039	
	Angus	Bali	-4,5406	,9139	
		Brahman	-4,8006	,6539	
		Limousin	-12,0272	-6,5728	
		Simental	-1,2619	,1885	
		FH	-1,8419	-,3915	
	DSL	Bali	Brahman	-2,9019	-1,4515
			Limousin	-,6652	,7852
Simental			-1,1885	1,2619	
FH			-1,3052	,1452	
Angus			-2,3652	-,9148	
Brahman		Bali	-,1285	1,3219	
		Limousin	-,3915	1,8419	
		Simental	-,1452	1,3052	
		FH	-1,7852	-,3348	
Limousin		Bali	,4515	1,9019	
		Brahman	1,4515	2,9019	
		Simental	,9148	2,3652	
		FH	,3348	1,7852	
		Angus	1,5115	2,9619	
Simental		Bali	-,7852	,6652	
		Brahman	-1,3219	,1285	
	Limousin	-1,9019	-,4515		
	Simental	-2,9619	-1,5115		
	FH	-,4719	,9785		
FH	Bali	-1,0085	,4419		
	Brahman	-1,5885	-,1381		
	Limousin	-2,6485	-1,1981		
	Angus				



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Multiple Comparisons

LSD

			Lower Bound	Upper Bound
VAP	Bali	Brahman	-7,3016	-2,1050
		Limousin	-6,7483	-1,5517
		Simental	-12,0250	-6,8284
		FH	-4,6250	,5716
		Angus		
	Brahman	Bali	2,1050	7,3016
		Limousin	-2,0450	3,1516
		Simental	-7,3216	-2,1250
		FH	,0784	5,2750
		Angus		
	Limousin	Bali	1,5517	6,7483
		Brahman	-3,1516	2,0450
		Simental	-7,8750	-2,6784
		FH	-4,750	4,7216
		Angus		
	Simental	Bali	6,8284	12,0250
		Brahman	2,1250	7,3216
		Limousin	2,6784	7,8750
		FH	4,8017	9,9983
		Angus		
FH	Bali	-,5716	4,6250	
	Brahman	-5,2750	-,0784	
	Limousin	-4,7216	,4750	
	Simental	-9,9983	-4,8017	
	Angus			
Angus	Bali	1,2750	6,4716	
	Brahman	-3,4283	1,7683	
	Limousin	-2,8750	2,3216	
	Simental	-8,1516	-2,9550	
	FH			
VCL	Bali	Brahman	-23,6884	-9,4316
		Limousin	-21,7950	-7,5383
		Simental	-38,2084	-23,9516
		FH	-22,0917	-7,8350
		Angus		
	Brahman	Bali	9,4316	23,6884
		Limousin	-5,2350	9,0217
		Simental	-21,6484	-7,3916
		FH	-5,5317	8,7250
		Angus		
	Limousin	Bali	7,5383	21,7950
		Brahman	-9,0217	5,2350
		Simental	-23,5417	-9,2850
		FH	-7,4250	6,8317
		Angus		



Multiple Comparisons

LSD

			Lower Bound	Upper Bound
VCL	Simental	Bali	23,9516	38,2084
		Brahman	7,3916	21,6484
		Limousin	9,2850	23,5417
		FH	8,9883	23,2450
	FH	Bali	7,8350	22,0917
		Brahman	-8,7250	5,5317
		Limousin	-6,8317	7,4250
		Simental	-23,2450	-8,9883
	Angus	Bali	5,7750	20,0317
		Brahman	-10,7850	3,4717
		Limousin	-8,8917	5,3650
		FH	-25,3050	-11,0483
VSL	Bali	Brahman	-3,8279	-,2787
		Limousin	-4,0313	-,4821
		Simental	-6,2213	-2,6721
		FH	-1,9413	1,6079
	Brahman	Bali	,2787	3,8279
		Limousin	-1,9779	1,5713
		Simental	-4,1679	-,6187
		FH	,1121	3,6613
	Limousin	Bali	,4821	4,0313
		Brahman	-1,5713	1,9779
		Simental	-3,9646	-,4154
		FH	,3154	3,8646
	Simental	Bali	2,6721	6,2213
		Brahman	,6187	4,1679
		Limousin	,4154	3,9646
		FH	2,5054	6,0546
	FH	Bali	-1,6079	1,9413
		Brahman	-3,6613	-,1121
		Limousin	-3,8646	-,3154
		Simental	-6,0546	-2,5054
	Angus	Bali	-,2179	3,3313
		Brahman	-2,2713	1,2779
		Limousin	-2,4746	1,0746
		FH	-4,6646	-1,1154



Multiple Comparisons

LSD

			Lower Bound	Upper Bound
STR	Bali	Brahman	,0032	,0568
		Limousin	-,0102	,0435
		Simental	,0232	,0768
		FH	-,0002	,0535
		Angus	-,0568	-,0032
	Brahman	Bali	-,0402	,0135
		Limousin	-,0068	,0468
		Simental	-,0302	,0235
		FH	-,0435	,0102
		Angus	-,0135	,0402
	Limousin	Bali	,0065	,0602
		Brahman	-,0168	,0368
		Simental	-,0768	-,0232
		FH	-,0468	,0068
		Angus	-,0602	-,0065
	Simental	Bali	-,0502	,0035
		Brahman	-,0535	,0002
		Limousin	-,0235	,0302
		FH	-,0368	,0168
		Angus	-,0035	,0502
FH	Bali	-,0568	-,0032	
	Brahman	-,0268	,0268	
	Limousin	-,0402	,0135	
	Simental	-,0068	,0468	
	Angus	-,0837	-,0363	
LIN	Bali	Brahman	,0363	,0837
		Limousin	,0263	,0737
		Simental	,0663	,1137
		FH	,0496	,0971
		Angus	-,0104	,0371
	Brahman	Bali	-,0737	-,0263
		Limousin	-,0337	,0137
		Simental	,0063	,0537
		FH	-,0137	,0337
		Angus	,0163	,0637
	Limousin	Bali	-,0004	,0471
		Brahman		
		Simental		
		FH		
		Angus		



Multiple Comparisons

LSD

			Lower Bound	Upper Bound
LIN	Simental	Bali	-,1137	-,0663
		Brahman	-,0537	-,0063
		Limousin	-,0637	-,0163
		FH	-,0637	-,0163
		Angus	-,0404	,0071
	FH	Bali	-,0971	-,0496
		Brahman	-,0371	,0104
		Limousin	-,0471	,0004
		Angus	-,0071	,0404
	Angus	Bali	-,0737	-,0263
		Brahman	-,0137	,0337
		Limousin	-,0237	,0237
		Simental	-,0237	,0237
		FH	,0163	,0637
		Angus	,0163	,0637
WOB	Bali	Brahman	,0399	,0801
		Limousin	,0299	,0701
		Simental	,0666	,1068
		FH	,0666	,1068
		Angus	,0566	,0968
	Brahman	Bali	-,0801	-,0399
		Limousin	-,0301	,0101
		Simental	,0066	,0468
		FH	,0066	,0468
		Angus	-,0034	,0368
	Limousin	Bali	-,0701	-,0299
		Brahman	-,0101	,0301
		Simental	,0166	,0568
		FH	,0166	,0568
		Angus	,0066	,0468
	Simental	Bali	-,1068	-,0666
		Brahman	-,0468	-,0066
		Limousin	-,0568	-,0166
		FH	-,0568	-,0166
		Angus	-,0301	,0101
	FH	Bali	-,0968	-,0566
		Brahman	-,0368	,0034
		Limousin	-,0468	-,0066
		Simental	-,0468	-,0066
Angus		-,0101	,0301	
Bali		-,0634	-,0232	
Brahman		-,0034	,0368	
Limousin		-,0134	,0268	
Simental		-,0134	,0268	
FH	,0232	,0634		



Multiple Comparisons

LSD

			Lower Bound	Upper Bound
ALH	Bali	Brahman	-1,1840	-,5960
		Limousin	-,9673	-,3794
		Simental	-1,3206	-,7327
		FH	-,9706	-,3827
		Angus		
	Brahman	Bali	,5960	1,1840
		Limousin	-,0773	,5106
		Simental	-,4306	,1573
		FH	-,0806	,5073
		Angus		
	Limousin	Bali	,3794	,9673
		Brahman	-,5106	,0773
		Simental	-,6473	-,0594
		FH	-,2973	,2906
		Angus		
	Simental	Bali	,7327	1,3206
		Brahman	-,1573	,4306
		Limousin	,0594	,6473
		FH	,0560	,6440
		Angus		
FH	Bali	,3827	,9706	
	Brahman	-,5073	,0806	
	Limousin	-,2906	,2973	
	Simental	-,6440	-,0560	
	Angus			
Angus	Bali	,2160	,8040	
	Brahman	-,6740	-,0860	
	Limousin	-,4573	,1306	
	Simental	-,8106	-,2227	
	FH			
BCF	Bali	Brahman	-,6106	2,0706
		Limousin	-1,5173	1,1640
		Simental	-1,2740	1,4073
		FH	-1,3806	1,3006
		Angus		
	Brahman	Bali	-2,0706	,6106
		Limousin	-2,2473	,4340
		Simental	-2,0040	,6773
		FH	-2,1106	,5706
		Angus		
	Limousin	Bali	-1,1640	1,5173
		Brahman	-,4340	2,2473
		Simental	-1,0973	1,5840
		FH	-1,2040	1,4773
		Angus		





Multiple Comparisons

LSD

			Lower Bound	Upper Bound
BCF	Simental	Bali	-1,4073	1,2740
		Brahman	-,6773	2,0040
		Limousin	-1,5840	1,0973
		FH	-1,4473	1,2340
		Angus	-1,4473	1,2340
	FH	Bali	-1,3006	1,3806
		Brahman	-,5706	2,1106
		Limousin	-1,4773	1,2040
		Simental	-1,2340	1,4473
	Angus	Bali	-1,3006	1,3806
		Brahman	-,5706	2,1106
		Limousin	-1,4773	1,2040
Simental		-1,2340	1,4473	

\*. The mean difference is significant at the .05 level.



## DOKUMENTASI



Mikroskop



Warmplate



Komputer CASA



Cover Glass



LSD



Objek Glass



Mikropipet



Mikrotube



Alat Thawing



LSD



Straw Cutter



Tip



Container Straw



Tissue



LSD



Pinset



Straw 6 Bangsa Sapi



Pengambilan Straw



Proses *Thawing*



Menggunting ujung straw



Pembuatan preparat



Multiple Comparisons

LSD



Pengamatan melalui mikroskop



Pengamatan pola pergerakan  
spermatozoa



## RIWAYAT HIDUP



Muhammad Raafi Lahir di Kendari pada tanggal 11 Oktober 1997 sebagai anak kedua dari 3 orang bersaudara dari pasangan bapak (Alm.) Ir. Muhammad Nursyamsi S.M dan ibu Haspiah Tahir, S.E Jenjang pendidikan formal yang pernah ditempuh adalah pada tahun 2002 penulis pertama kali duduk sebagai siswa di salah satu Taman Kanak-Kanak di TK Kuncup Pertiwi Kendari hingga tahun 2003. penulis kemudian melanjutkan pendidikan di SDN 12 Baruga Kota Kendari hingga lulus pada tahun 2009, kemudian setelah lulus SD penulis melanjutkan pendidikan di SMPN 9 Kendari dan lulus tahun 2012, Kemudian penulis melanjutkan pendidikan kejenjang lebih tinggi di sekolah menengah atas SMAN 4 Kendari, pada saat SMA penulis memasuki organisasi Pramuka dan lulus pada tahun 2015, setelah menyelesaikan tingkat SMA, penulis diterima di Perguruan Tinggi Negeri (PTN) melalui jalur SNMPTN dan menjadi salah satu mahasiswa di Fakultas Peternakan, Universitas Hasanuddin, Makassar

