

# Tragedy of the Commons Work Sheet

Head of Cattle (Qin)	Production Function	
	(Assumed) Output (lbs Qout)	(Calculated) Average Product (Qout/Qin)    Marginal Product (dQout)
1	100	100    100
2	190	95    90
3	270	90    80
4	330	82.5    60
5	370	74    40
6	390	65    20
7	395	56.428571    5
8	400	50    5
9	390	43.333333    -10
10	380	38    -10
11	365	33.181818    -15
12	350	29.166667    -15
13	335	25.769231    -15
14	315	22.5    -20
15	290	19.333333    -25
16	240	15    -50
17	150	8.8235294    -90

Commons Game (Payoffs are Outputs AI, Bob)

AI's Head of Cattle	Bob's Head of Cattle											
	1	2	3	4	5	6	1	2	3	4	5	6
1	95	95	90	180	82.5	247.5	74	296	65	325	56.429	338.57
2	180	90	165	165	148	222	130	260	112.86	282.14	100	300
3	247.5	82.5	222	148	195	195	169.29	225.71	150	250	130	260
4	296	74	260	130	225.71	169.29	<b>200</b>	<b>200</b>	173.33	216.67	152	228
5	325	65	282.14	112.86	250	150	216.67	173.33	190	190	165.91	199.09
6	338.57	56.429	300	100	260	130	228	152	199.09	165.91	175	175
7	350	50	303.33	86.667	266	114	232.27	132.73	204.17	145.83	180.38	154.62
8	346.67	43.333	304	76	265.45	99.545	233.33	116.67	206.15	128.85	180	135
9	342	38	298.64	66.364	262.5	87.5	231.92	103.08	202.5	112.5	174	116

