

Impact sur le rendement

Rendement

		prix maïs (€/tonne)																											
		160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	
coût azote (€/unité N)	0.75	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	
	0.80	-0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
	0.85	-0.2	-0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	0.90	-0.2	-0.2	-0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	0.95	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	1.00	-0.4	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	1.05	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	1.10	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	1.15	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	1.20	-0.9	-0.7	-0.6	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.25	-1.0	-0.8	-0.7	-0.5	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.30	-1.1	-0.9	-0.8	-0.6	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.35	-1.2	-1.0	-0.9	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.40	-1.4	-1.1	-1.0	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.45	-1.5	-1.3	-1.1	-0.9	-0.8	-0.6	-0.5	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.50	-1.7	-1.4	-1.2	-1.0	-0.9	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.55	-1.8	-1.5	-1.3	-1.1	-1.0	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.60	-2.0	-1.7	-1.4	-1.2	-1.1	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.65	-2.1	-1.8	-1.6	-1.3	-1.2	-1.0	-0.9	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	1.70	-2.3	-2.0	-1.7	-1.5	-1.3	-1.1	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
1.75	-2.4	-2.1	-1.8	-1.6	-1.4	-1.2	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	
1.80	-2.6	-2.3	-2.0	-1.7	-1.5	-1.3	-1.1	-1.0	-0.9	-0.7	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	
1.85	-2.8	-2.4	-2.1	-1.8	-1.6	-1.4	-1.2	-1.1	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	
1.90	-3.0	-2.6	-2.2	-2.0	-1.7	-1.5	-1.3	-1.2	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	
1.95	-3.2	-2.7	-2.4	-2.1	-1.8	-1.6	-1.4	-1.3	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	
2.00	-3.4	-2.9	-2.5	-2.2	-2.0	-1.7	-1.5	-1.3	-1.2	-1.1	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0	
2.05	-3.6	-3.1	-2.7	-2.4	-2.1	-1.8	-1.6	-1.4	-1.3	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	
2.10	-3.8	-3.3	-2.9	-2.5	-2.2	-2.0	-1.7	-1.5	-1.4	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	
2.15	-4.0	-3.5	-3.0	-2.7	-2.3	-2.1	-1.8	-1.6	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	
2.20	-4.2	-3.6	-3.2	-2.8	-2.5	-2.2	-2.0	-1.7	-1.6	-1.4	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.0	
2.25	-4.4	-3.8	-3.4	-3.0	-2.6	-2.3	-2.1	-1.8	-1.7	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	
2.30	-4.6	-4.0	-3.5	-3.1	-2.8	-2.5	-2.2	-2.0	-1.8	-1.6	-1.4	-1.3	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	
2.35	-4.9	-4.2	-3.7	-3.3	-2.9	-2.6	-2.3	-2.1	-1.9	-1.7	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	0.0	
2.40	-5.1	-4.4	-3.9	-3.4	-3.0	-2.7	-2.4	-2.2	-2.0	-1.8	-1.6	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	0.0	
2.45	-5.3	-4.7	-4.1	-3.6	-3.2	-2.9	-2.6	-2.3	-2.1	-1.9	-1.7	-1.5	-1.4	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	0.0	
2.50	-5.6	-4.9	-4.3	-3.8	-3.4	-3.0	-2.7	-2.4	-2.2	-2.0	-1.8	-1.6	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	0.0	
2.55	-5.8	-5.1	-4.5	-4.0	-3.5	-3.1	-2.8	-2.5	-2.3	-2.1	-1.9	-1.7	-1.5	-1.4	-1.3	-1.1	-1.0	-0.9	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.4	-0.4	0.0	
2.60	-6.1	-5.3	-4.7	-4.1	-3.7	-3.3	-2.9	-2.7	-2.4	-2.2	-2.0	-1.8	-1.6	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.4	-0.4	0.0	
2.65	-6.3	-5.5	-4.9	-4.3	-3.8	-3.4	-3.1	-2.8	-2.5	-2.3	-2.1	-1.9	-1.7	-1.5	-1.4	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.4	-0.4	0.0	
2.70	-6.6	-5.8	-5.1	-4.5	-4.0	-3.6	-3.2	-2.9	-2.6	-2.4	-2.2	-2.0	-1.8	-1.6	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.4	0.0	
2.75	-6.8	-6.0	-5.3	-4.7	-4.2	-3.7	-3.4	-3.0	-2.7	-2.5	-2.3	-2.0	-1.9	-1.7	-1.6	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.4	0.0	
2.80	-7.1	-6.2	-5.5	-4.9	-4.4	-3.9	-3.5	-3.2	-2.9	-2.6	-2.4	-2.1	-2.0	-1.8	-1.6	-1.5	-1.3	-1.1	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	-0.4	0.0	
2.85	-7.4	-6.5	-5.7	-5.1	-4.5	-4.1	-3.7	-3.3	-3.0	-2.7	-2.5	-2.2	-2.0	-1.9	-1.7	-1.6	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	-0.5	0.0	
2.90	-7.7	-6.7	-6.0	-5.3	-4.7	-4.2	-3.8	-3.4	-3.1	-2.8	-2.6	-2.3	-2.1	-2.0	-1.8	-1.6	-1.5	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	0.0	
2.95	-8.0	-7.0	-6.2	-5.5	-4.9	-4.4	-4.0	-3.6	-3.2	-2.9	-2.7	-2.4	-2.2	-2.0	-1.9	-1.7	-1.6	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	-0.6	0.0	
3.00	-8.3	-7.3	-6.4	-5.7	-5.1	-4.6	-4.1	-3.7	-3.4	-3.1	-2.8	-2.5	-2.3	-2.1	-2.0	-1.8	-1.7	-1.5	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	0.0	
3.05	-8.6	-7.5	-6.6	-5.9	-5.3	-4.7	-4.3	-3.9	-3.5	-3.2	-2.9	-2.6	-2.4	-2.2	-2.0	-1.9	-1.7	-1.6	-1.5	-1.4	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6	0.0	
3.10	-8.9	-7.8	-6.9	-6.1	-5.5	-4.9	-4.4	-4.0	-3.6	-3.3	-3.0	-2.8	-2.5	-2.3	-2.1	-2.0	-1.8	-1.7	-1.5	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	0.0	
3.15	-9.2	-8.1	-7.1	-6.3	-5.7	-5.1	-4.6	-4.1	-3.8	-3.4	-3.1	-2.9	-2.6	-2.4	-2.2	-2.0	-1.9	-1.7	-1.6	-1.5	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.8	0.0	
3.20	-9.5	-8.3	-7.4	-6.6	-5.9	-5.3	-4.7	-4.3	-3.9	-3.6	-3.2	-3.0	-2.7	-2.5	-2.3	-2.1	-2.0	-1.8	-1.7	-1.5	-1.4	-1							