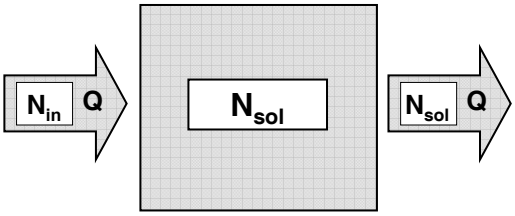
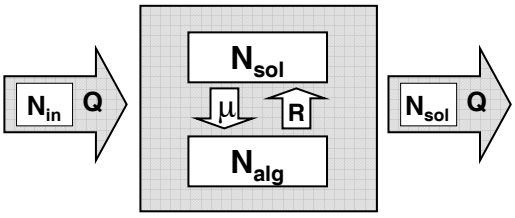
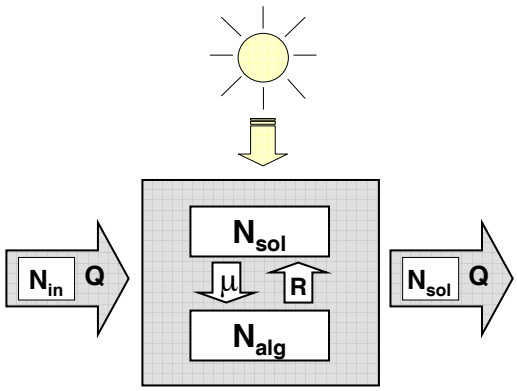


$$\frac{dN_{sol}}{dt} = \left(N_{in} - N_{sol}\right) \cdot Q$$



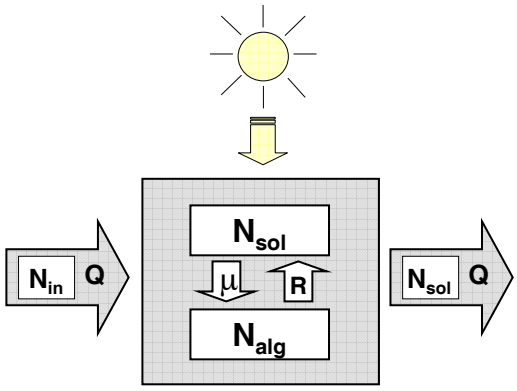
$$\frac{dN_{sol}}{dt} = \left(N_{in} - N_{sol}\right) \cdot Q - \left(\mu - R\right) \cdot N_{alg}$$

$$\frac{dN_{alg}}{dt} = \left(\mu - R - Q\right) \cdot N_{alg}$$



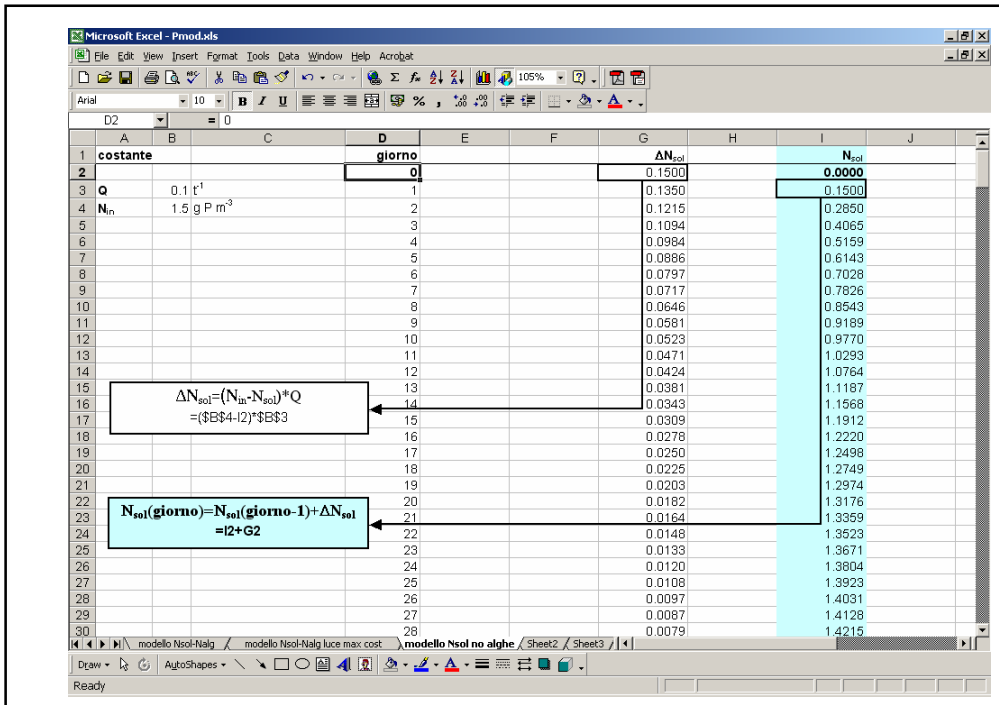
$$\frac{dN_{sol}}{dt} = \left(N_{in} - N_{sol}\right)\cdot Q - \left(\mu - R\right)\cdot N_{alg}$$

$$\frac{dN_{alg}}{dt} = \left(\mu - R - Q\right)\cdot N_{alg}$$

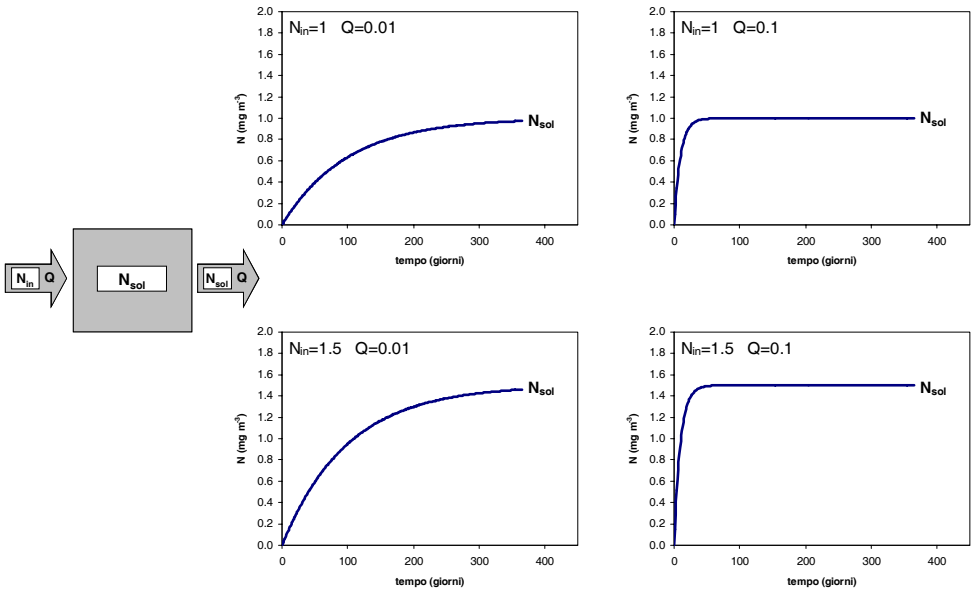


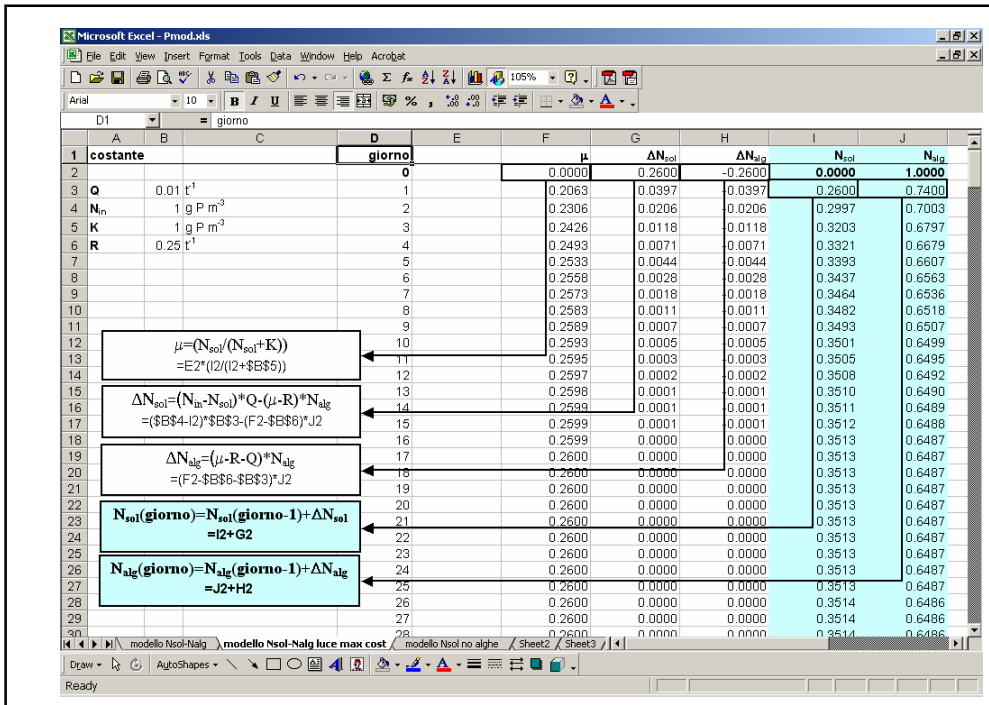
$$\frac{dN_{sol}}{dt} = \left(N_{in} - N_{sol}\right)\cdot Q - \left(\mu - R\right)\cdot N_{alg}$$

$$\frac{dN_{alg}}{dt} = \left(\mu - R - Q\right)\cdot N_{alg}$$

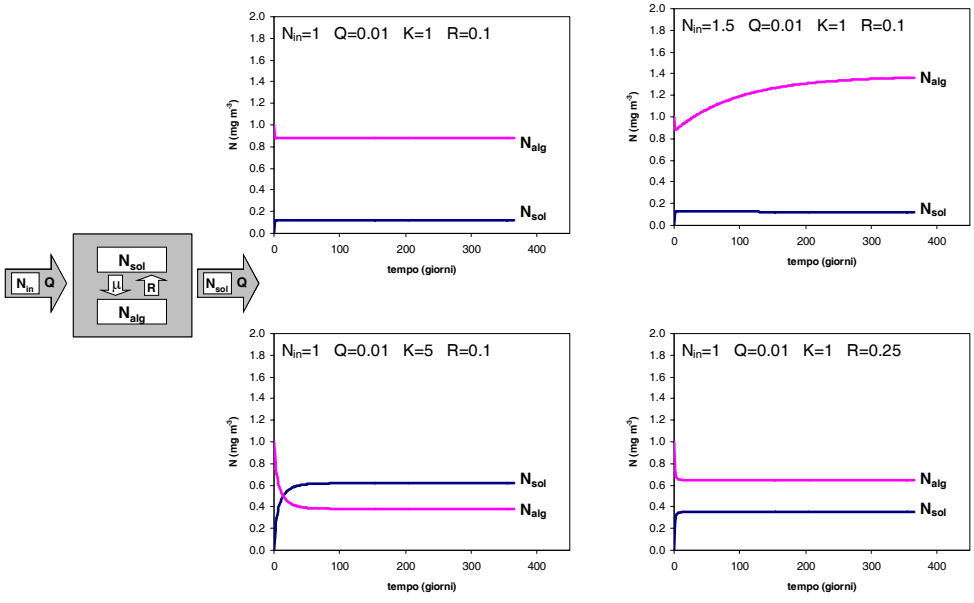


Solo concentrazione azoto, niente alghe





Azoto e alghe, irradianza massima e costante



Microsoft Excel - Pmod.xls

	A	B	C	D	E	F	G	H	I	J
1	**costante**			**giorno**	**L**	**μ**	**ΔN_{sol}**	**ΔN_{alg}**	**N_{sol}**	**N_{alg}**
2	L_{min}	0.5	unità relative	0	0.5000	0.0000	0.1100	-0.1100	**0.0000**	**1.0000**
3	Q	0.01	t^{-1}	1	0.5043	0.0500	0.0534	-0.0534	0.1100	0.8900
4	N_{in}	1	g P m^{-3}	2	0.5086	0.0714	0.0323	-0.0323	0.1634	0.8366
5	K	1	g P m^{-3}	3	0.5129	0.0839	0.0210	-0.0210	0.1957	0.8043
6	R	0.1	t^{-1}	4	0.5172	0.0921	0.0140	-0.0140	0.2166	0.7834
7				5	0.5215	0.0977	0.0094	-0.0094	0.2307	0.7693
8				6	0.5258	0.1018	0.0062	-0.0062	0.2401	0.7599
9				7	0.5301	0.1048	0.0039	-0.0039	0.2463	0.7537
10				8	0.5344	0.1070	0.0023	-0.0023	0.2503	0.7497
11				9	0.5387	0.1086	0.0010	-0.0010	0.2525	0.7475
12				10	0.5430	0.1098	0.0001	-0.0001	0.2536	0.7464
13				11	0.5473	0.1107	-0.0006	0.0006	0.2537	0.7463
14				12	0.5516	0.1114	-0.0011	0.0011	0.2531	0.7469
15				13	0.5558	0.1119	-0.0014	0.0014	0.2521	0.7479
16				14	0.5601	0.1123	-0.0017	0.0017	0.2507	0.7493
17				15	0.5644	0.1125	-0.0019	0.0019	0.2490	0.7510
18				16	0.5686	0.1127	-0.0020	0.0020	0.2471	0.7529
19				17	0.5729	0.1128	-0.0021	0.0021	0.2451	0.7549
20				18	0.5772	0.1128	-0.0021	0.0021	0.2430	0.7570
21				19	0.5814	0.1129	-0.0022	0.0022	0.2409	0.7591
22				20	0.5856	0.1128	-0.0022	0.0022	0.2387	0.7613
23				21	0.5899	0.1128	-0.0022	0.0022	0.2365	0.7635
24				22	0.5941	0.1128	-0.0021	0.0021	0.2344	0.7656
25				23	0.5983	0.1128	-0.0021	0.0021	0.2322	0.7678
26				24	0.6026	0.1127	-0.0021	0.0021	0.2301	0.7699
27				25	0.6068	0.1127	-0.0021	0.0021	0.2280	0.7720
28				26	0.6110	0.1126	-0.0020	0.0020	0.2260	0.7740
29				27	0.6152	0.1126	-0.0020	0.0020	0.2239	0.7761

$L=L_{min}*(1+\sin(1/365*\pi*\text{giorno}))$
=$B$2*(1+SIN(1/365*PI()*D2))

$\mu=L*(N_{sol}/(N_{sol}+K))$
=E2*(I2/(I2+$B$5))

$\Delta N_{sol}=(N_{in}-N_{sol})*Q-(\mu-R)*N_{alg}$
=($B$4-I2)*$B$3-(F2-$B$6)*J2

$\Delta N_{alg}=(\mu-R-Q)*N_{alg}$
=(F2-$B$6-$B$3)*J2

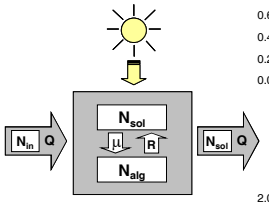
$N_{sol}(\text{giorno})=N_{sol}(\text{giorno-1})+\Delta N_{sol}$
=I2+G2

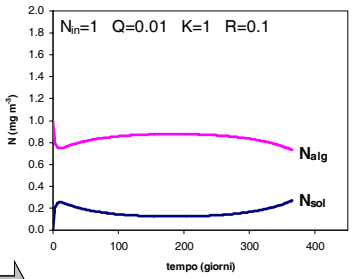
$N_{alg}(\text{giorno})=N_{alg}(\text{giorno-1})+\Delta N_{alg}$
=J2+H2

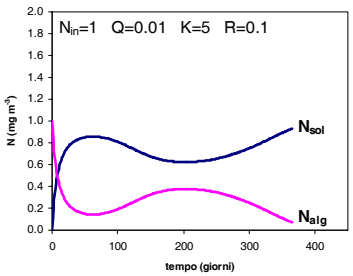
Sheet1 / Sheet2 / Sheet3

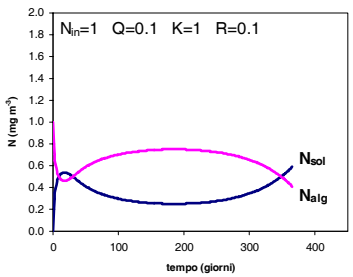
Ready

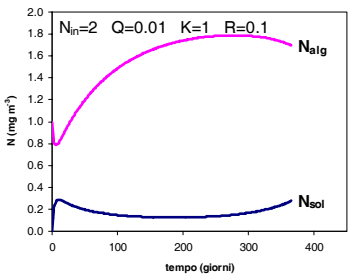
Azoto e alghe, irradianza variabile











Azoto e alghe, irradianza variabile, ma...