

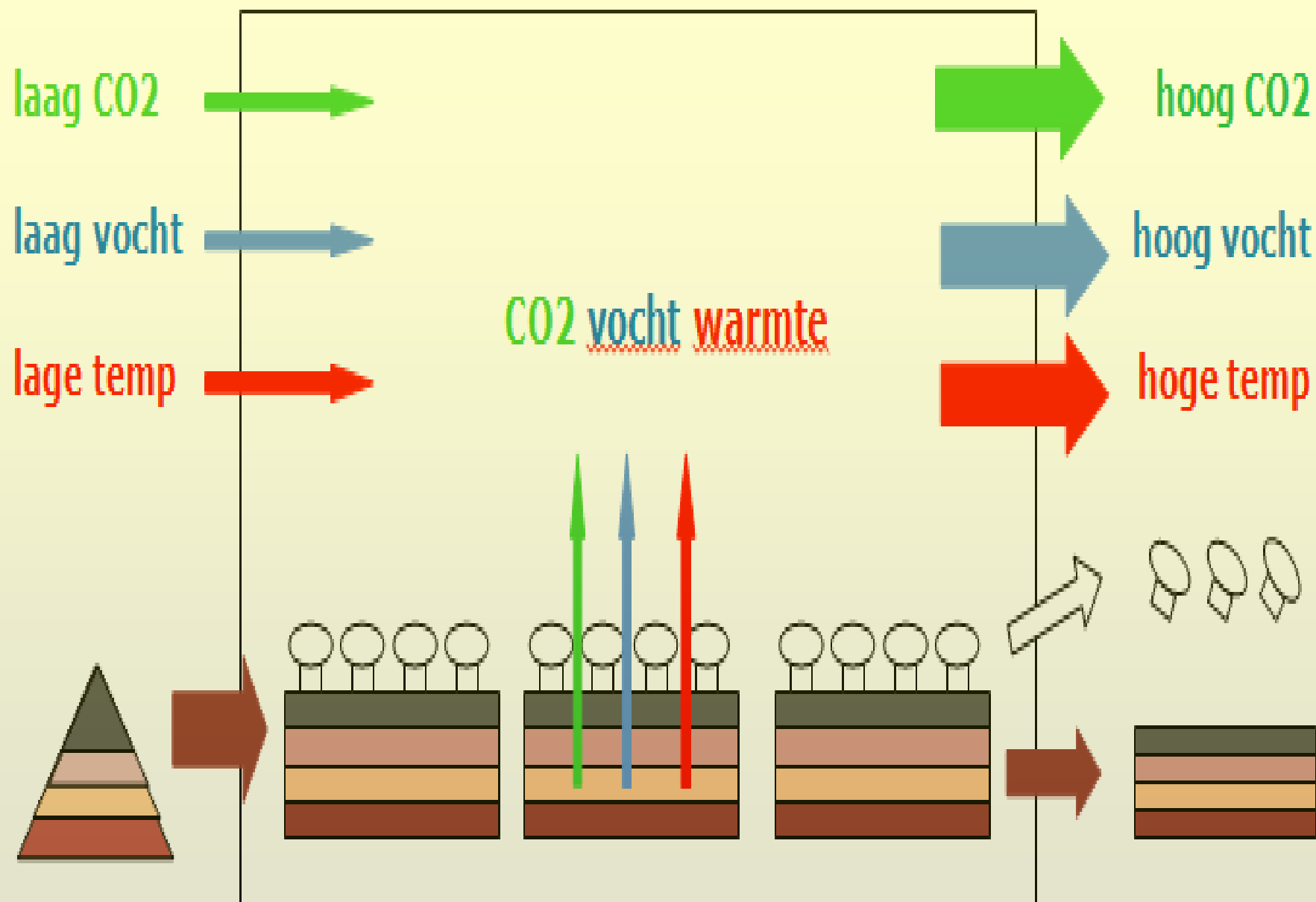
CHAMPIGNON BALANSEN

Input Output model voor water en koolstofbalansen, BCO 30-03-2011

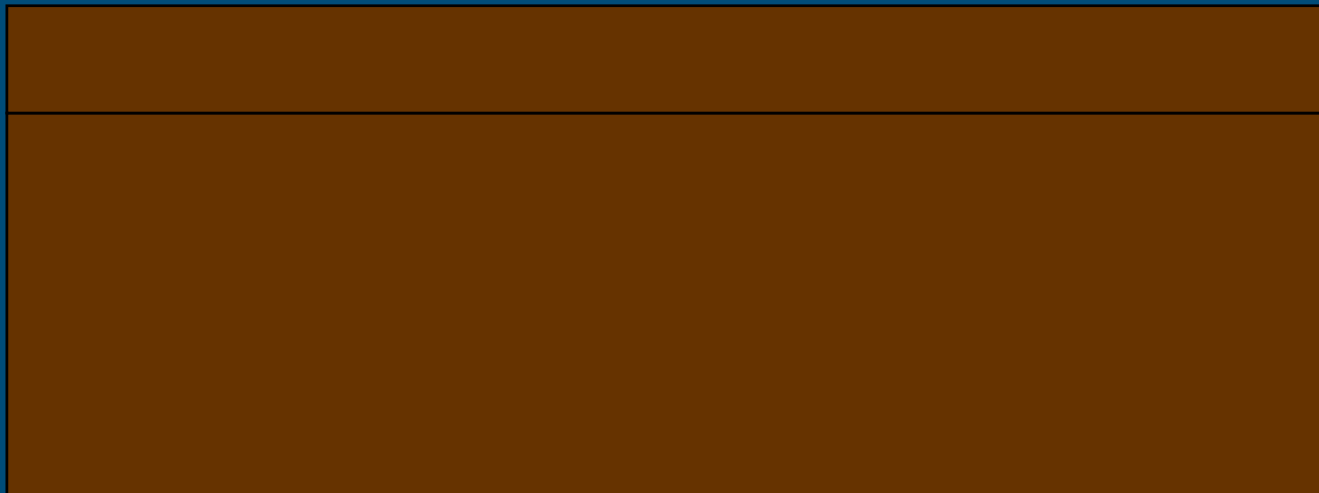
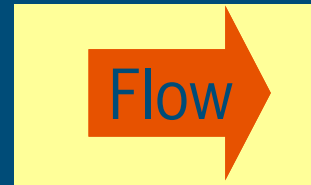
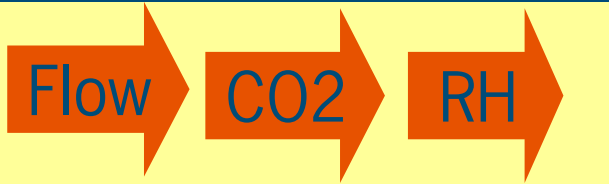
Chris Blok, Anne Elings, Anton Sonnenberg



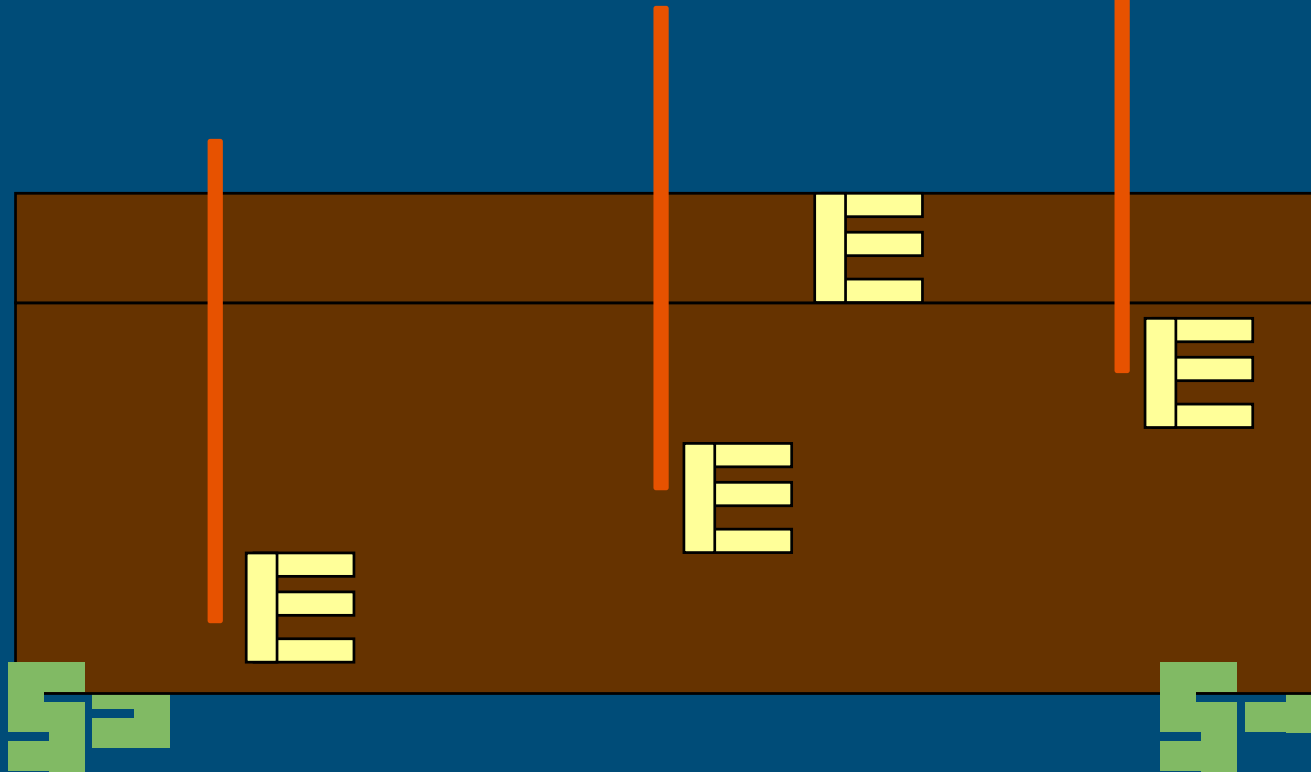




Plaatsing RV, vol, CO2 in/out



Plaatsing pH, EC, WG en T sensoren



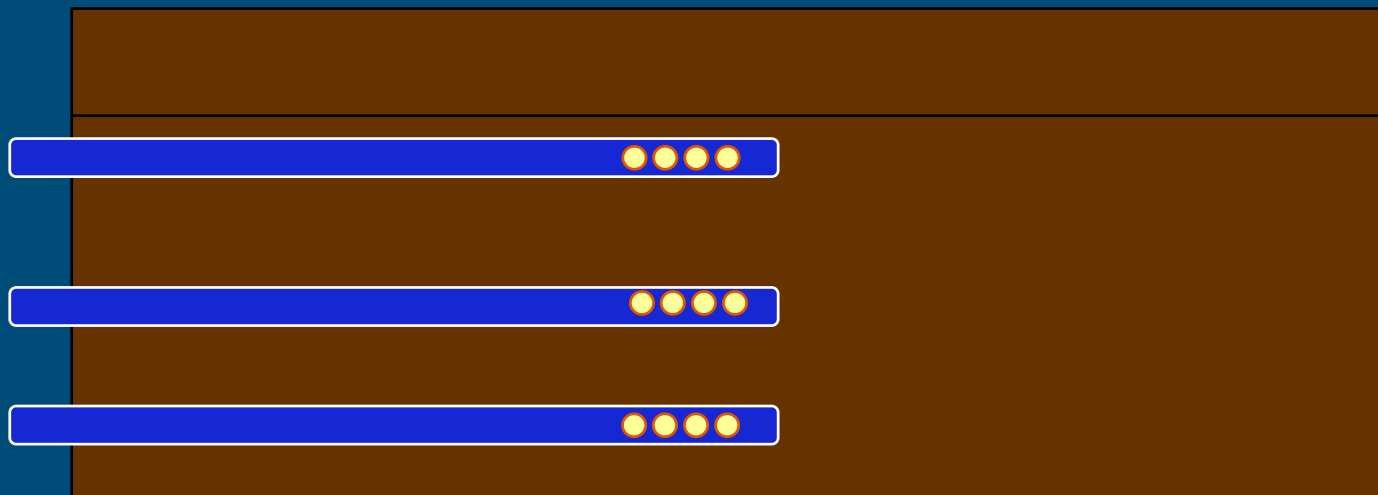
Load cells



WG/EC/T sensor

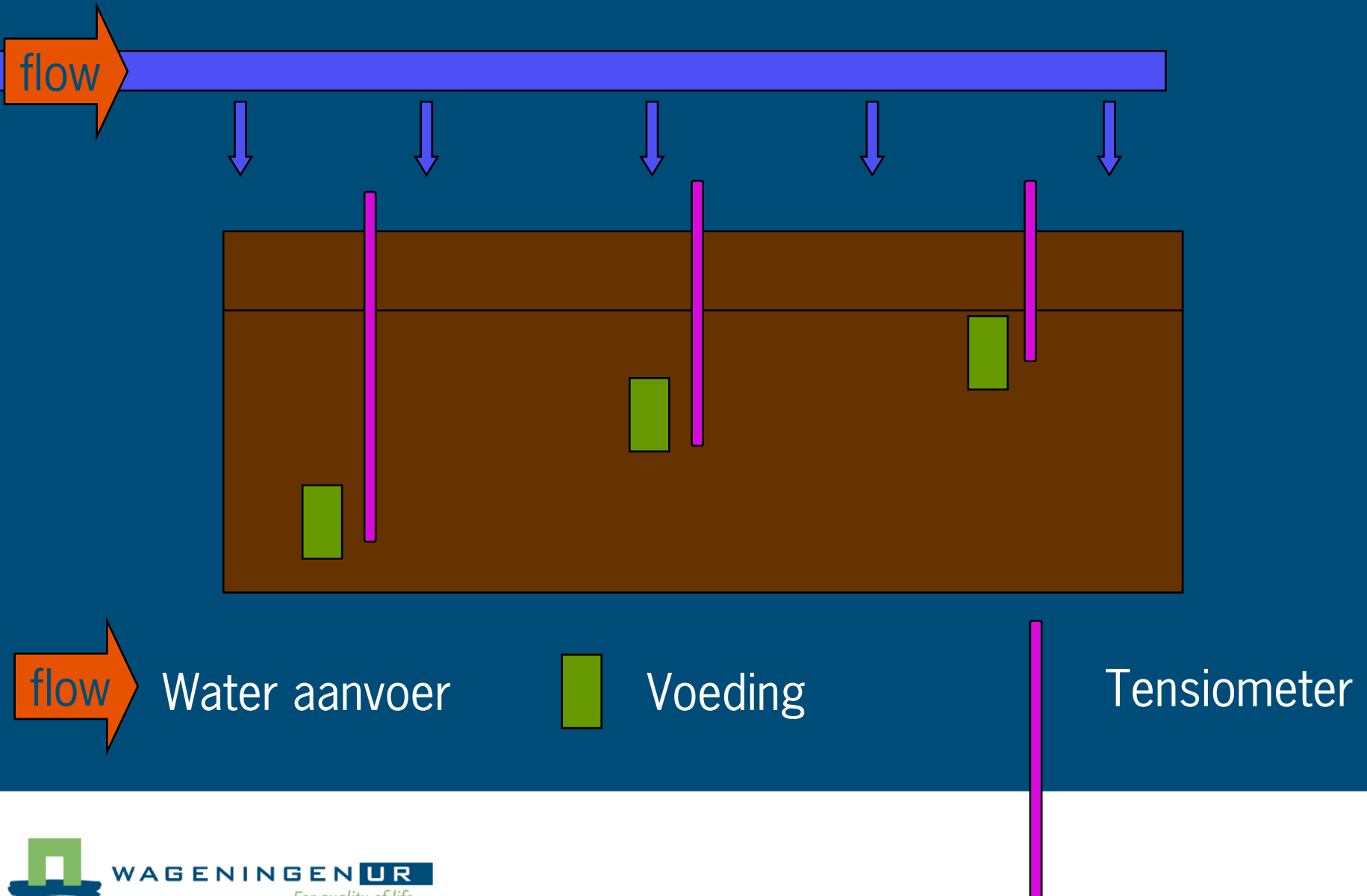
pH sensor

Plaatsing gasmeetbuizen

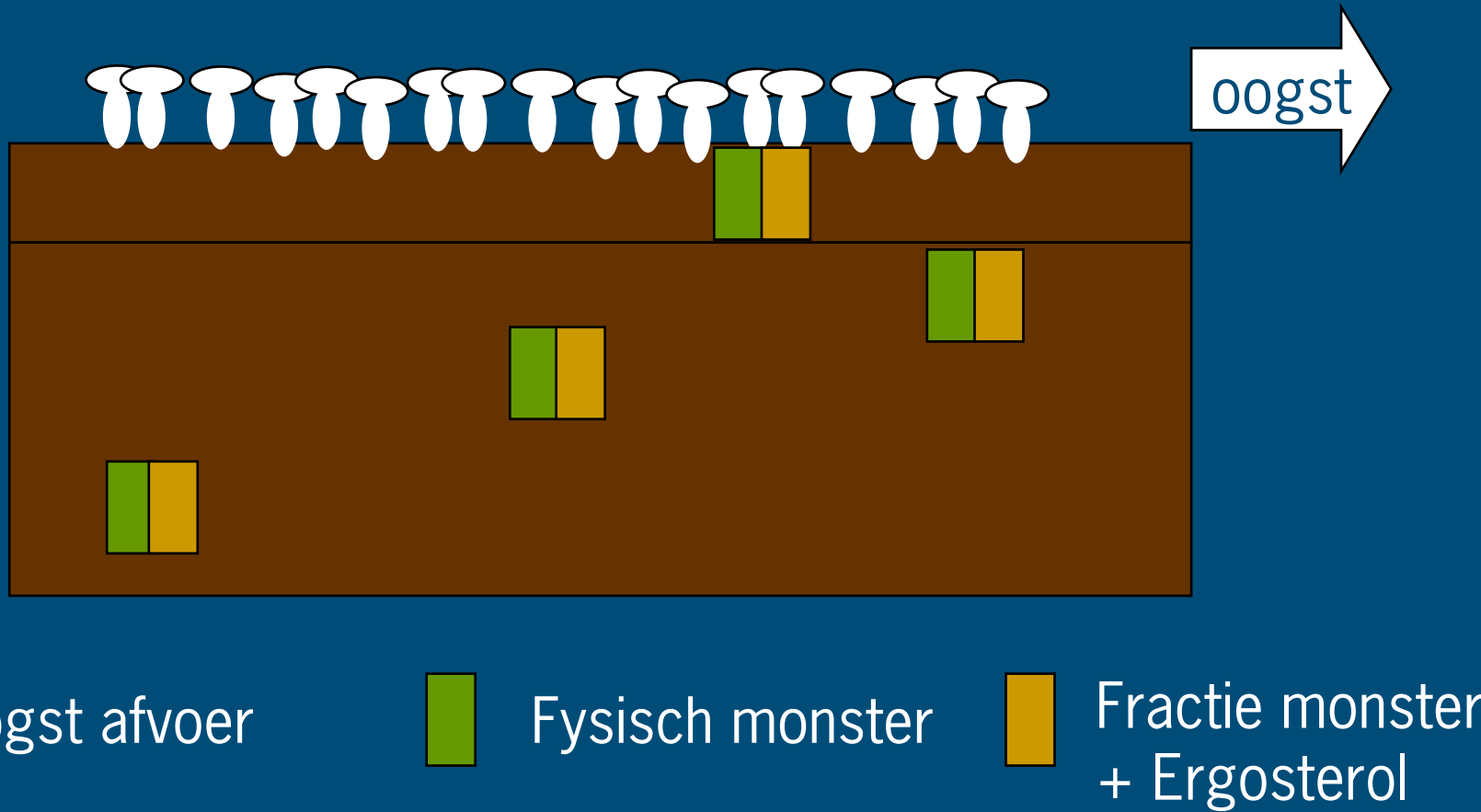


Gas meetbuis

Plaatsing voeding, wateraanvoer, tensiometers



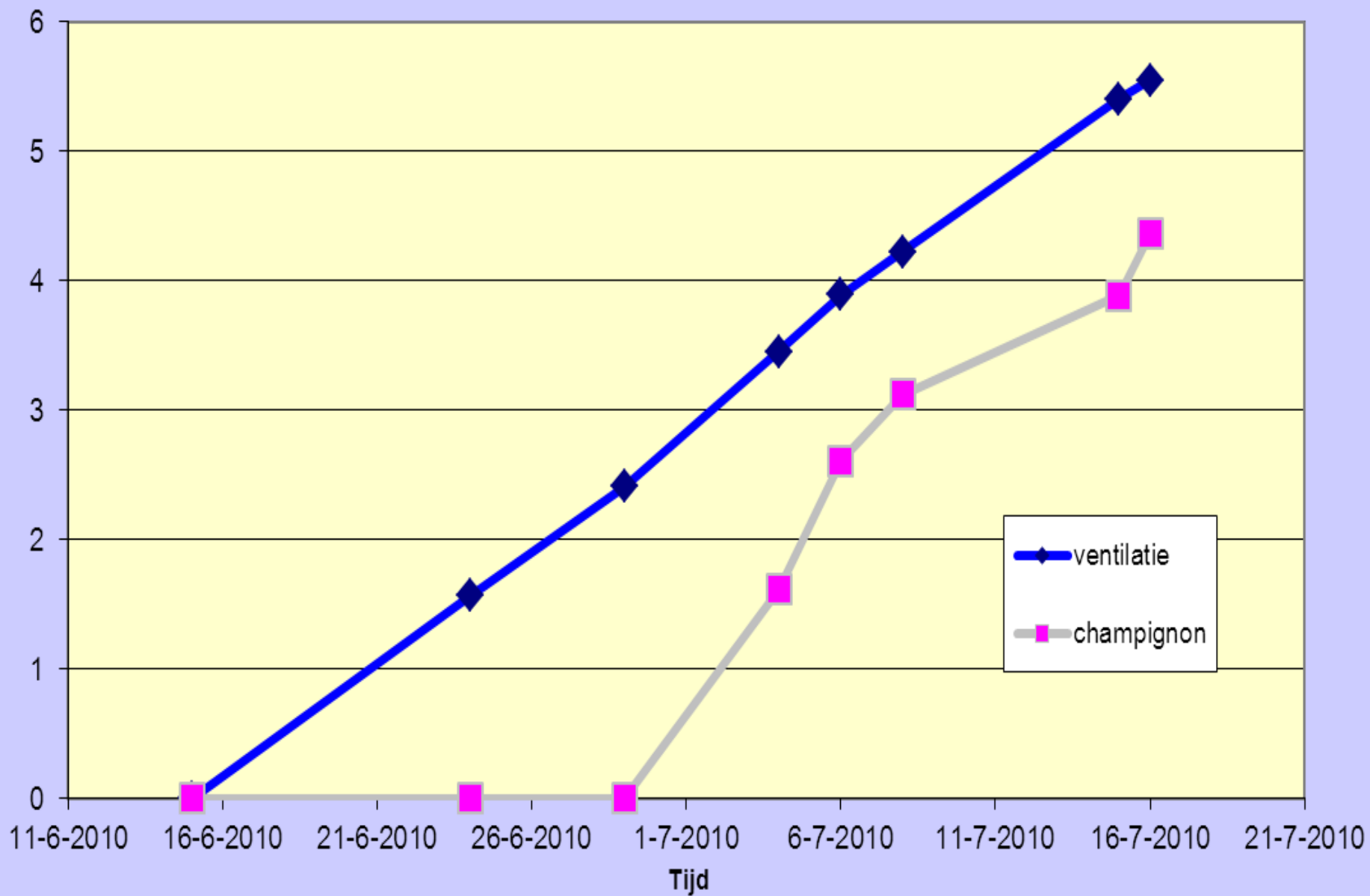
Plaatsing oogst, fysische monsters, fracties

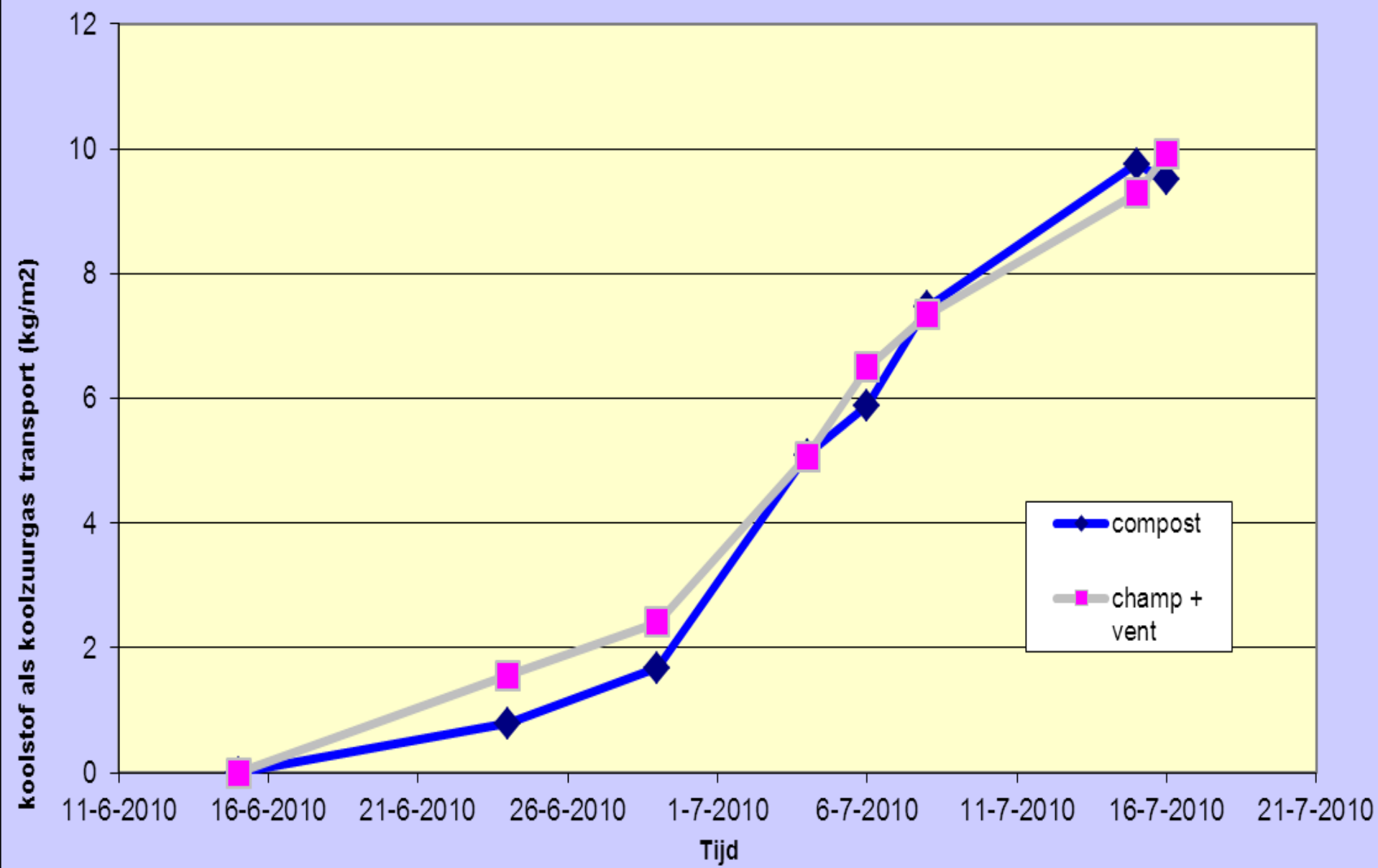


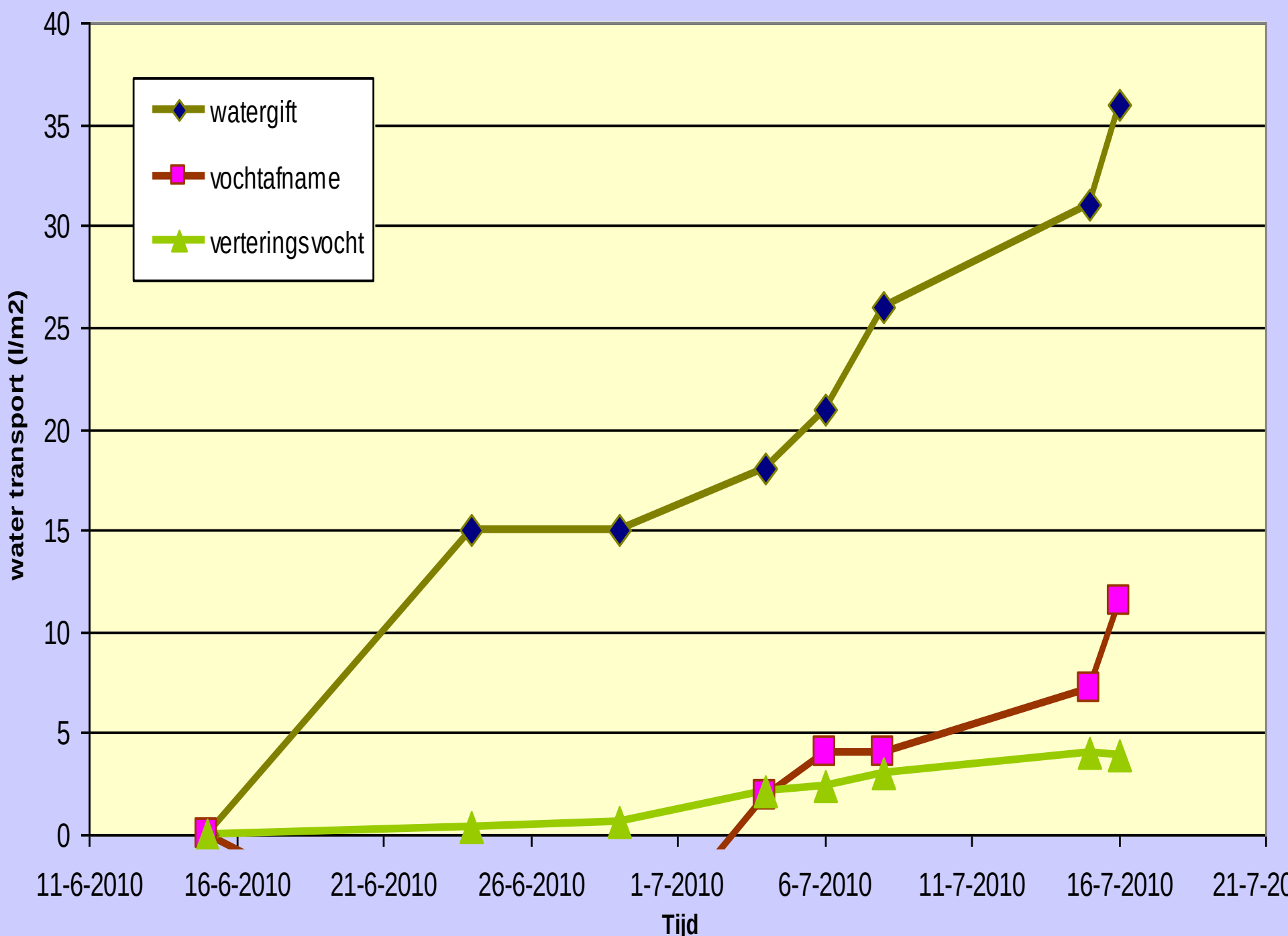
Koolstofgehalten compost en champignon

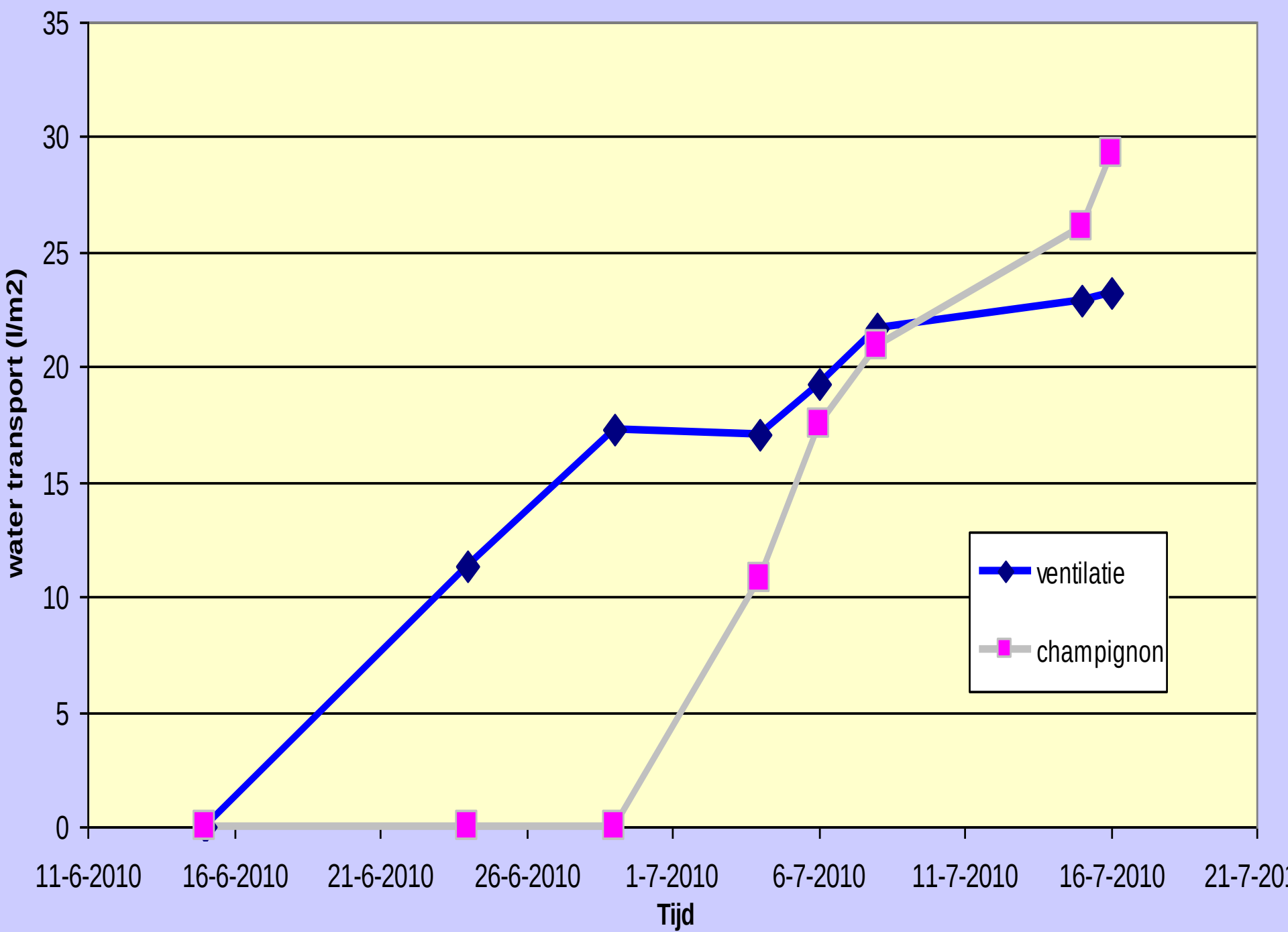
Monster	C	OM	C
	g/kg DM	g/kg DM	% g/g OM
Einde teelt - compost	290	576.0	50%
Doorgroeiende - compost	330	672.0	49%
Champignons	427	895.0	48%

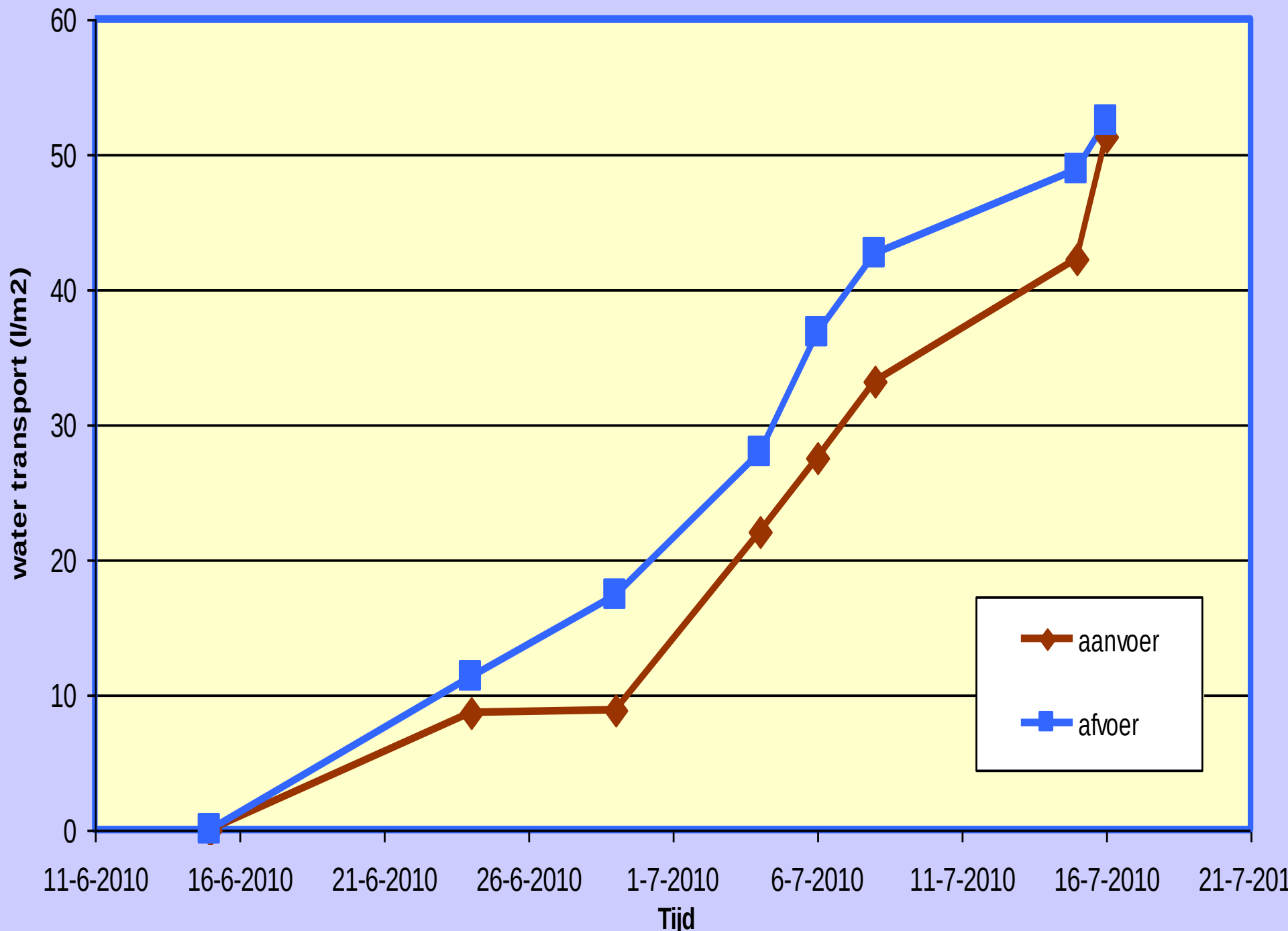
koolstof als koolzuurgas transport (kg/m2)

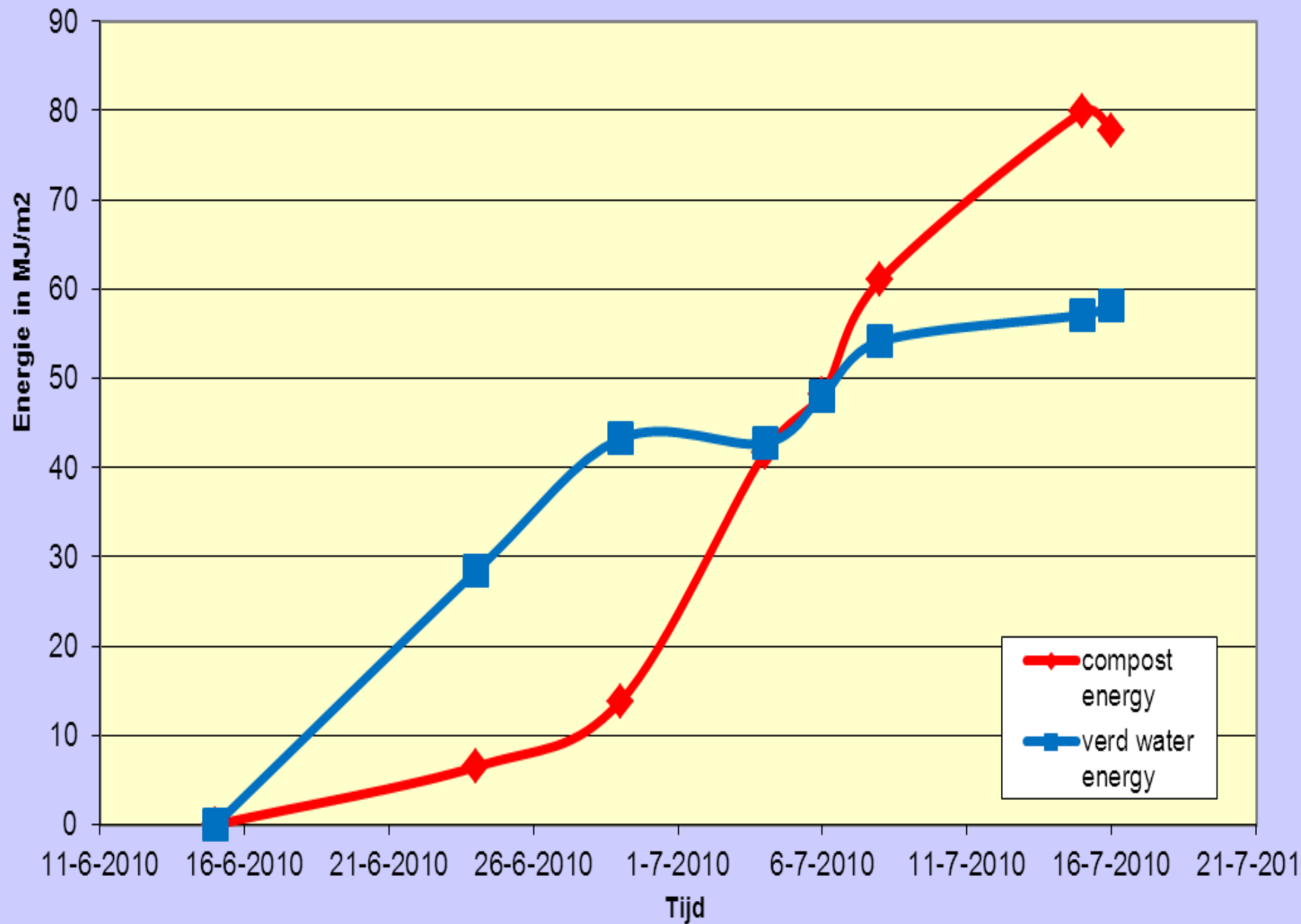




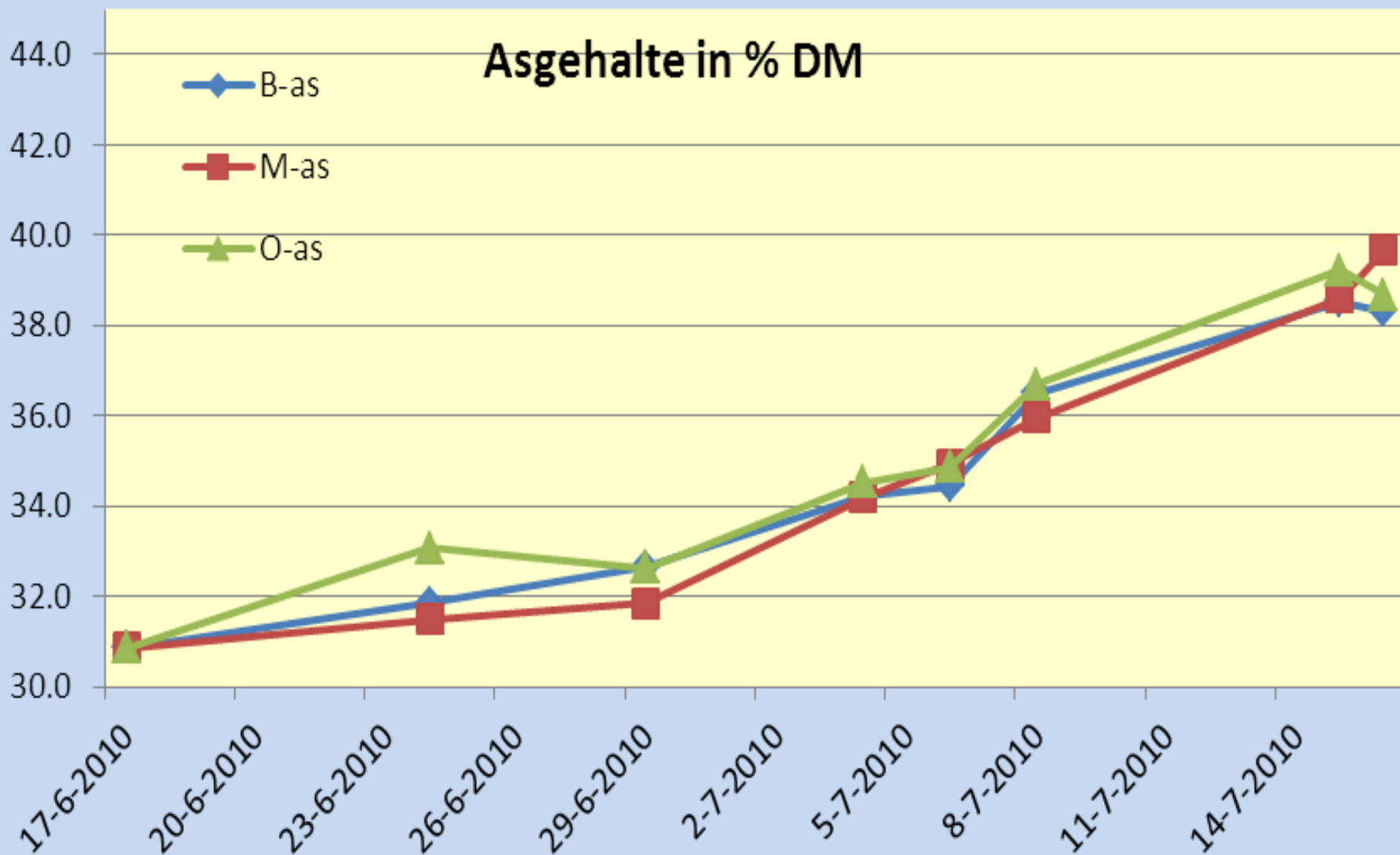


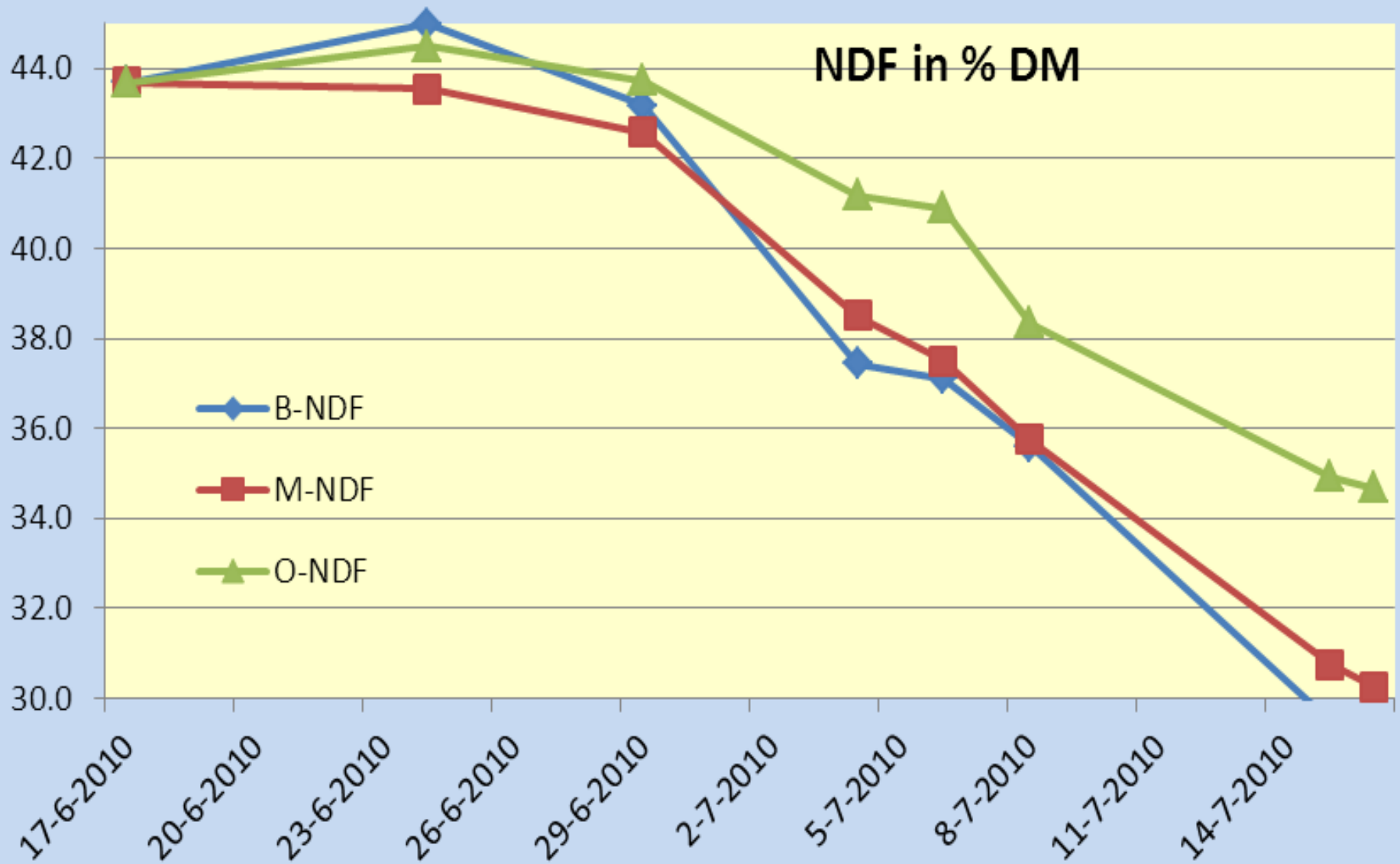




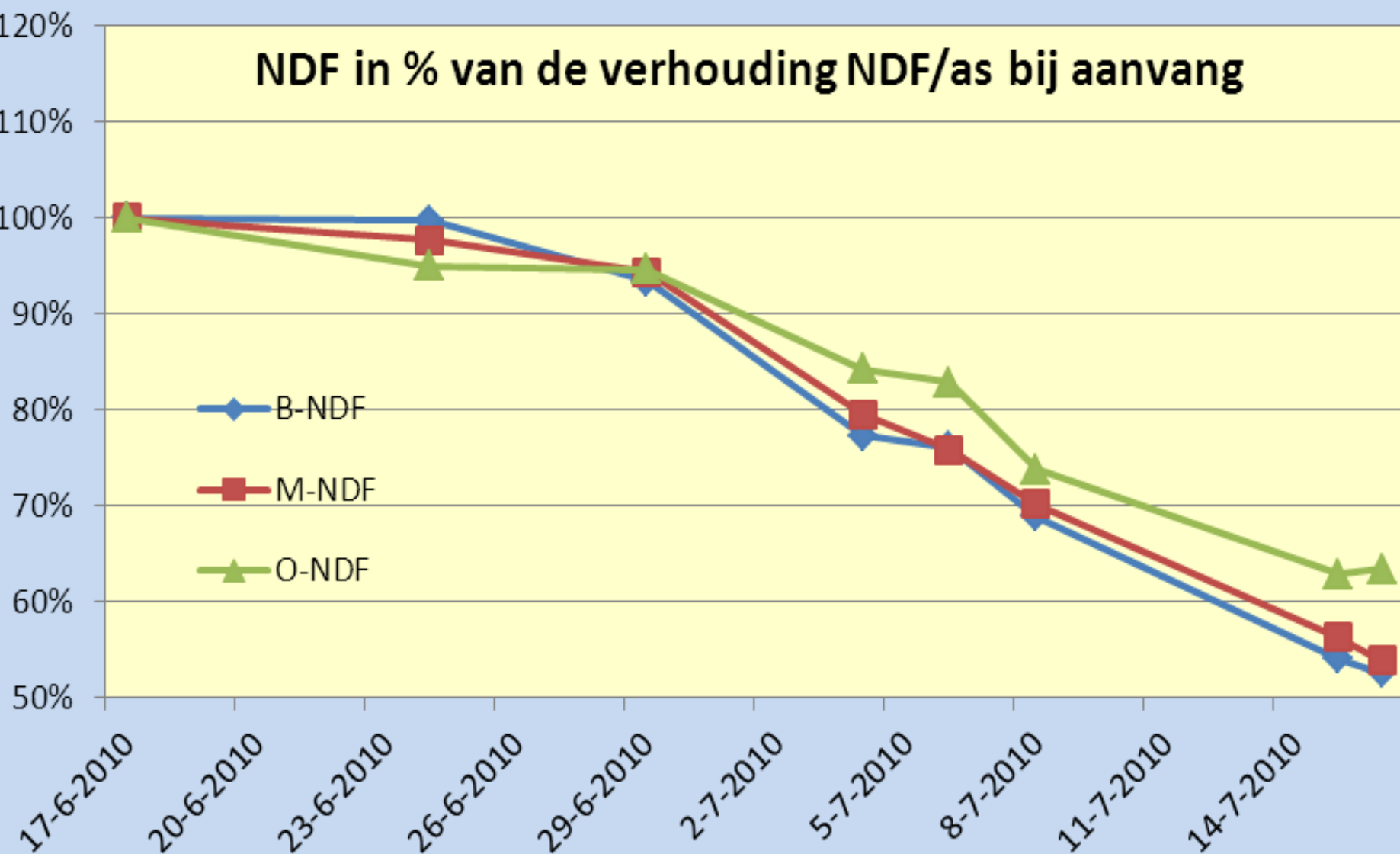


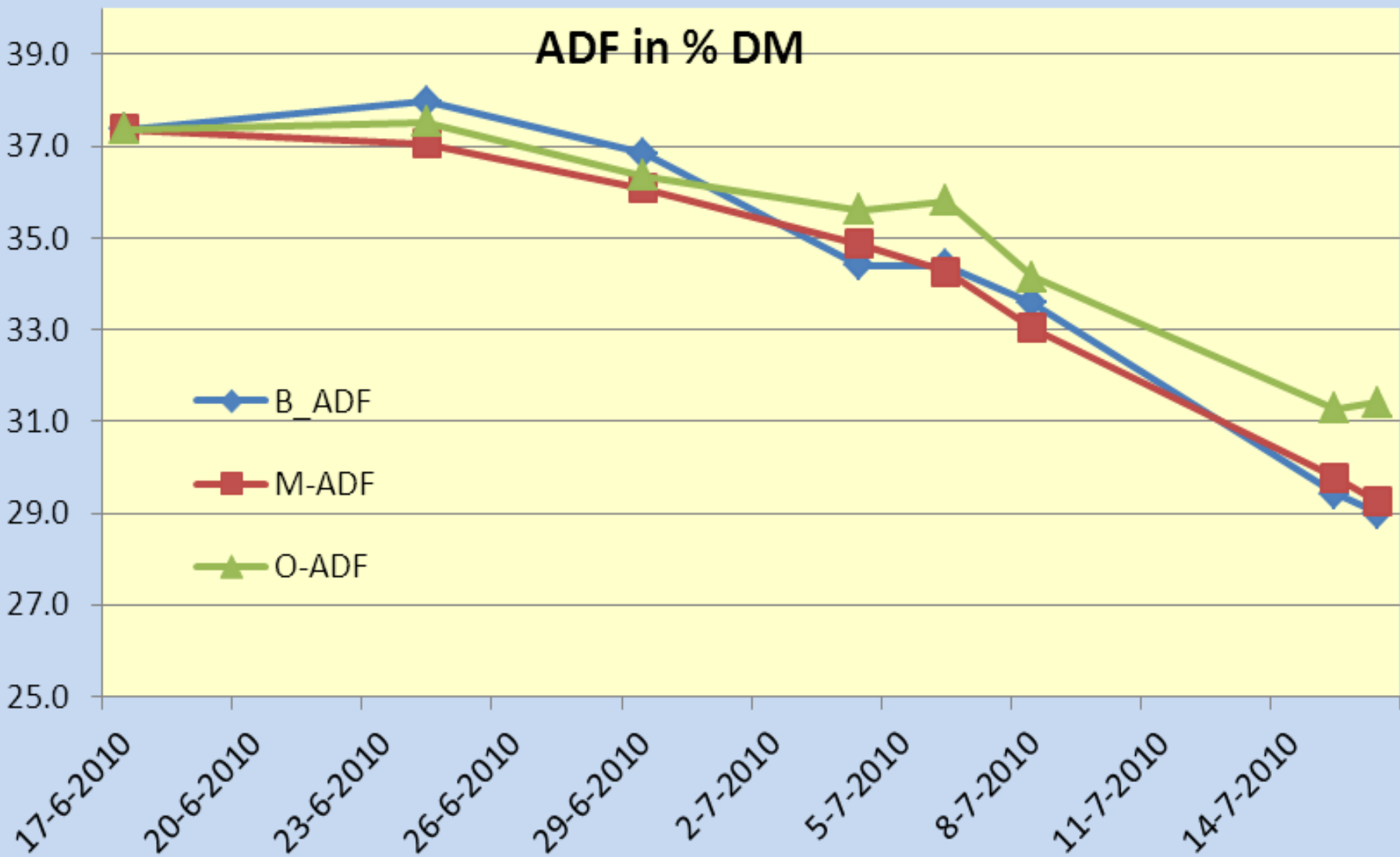
Asgehalte in % DM

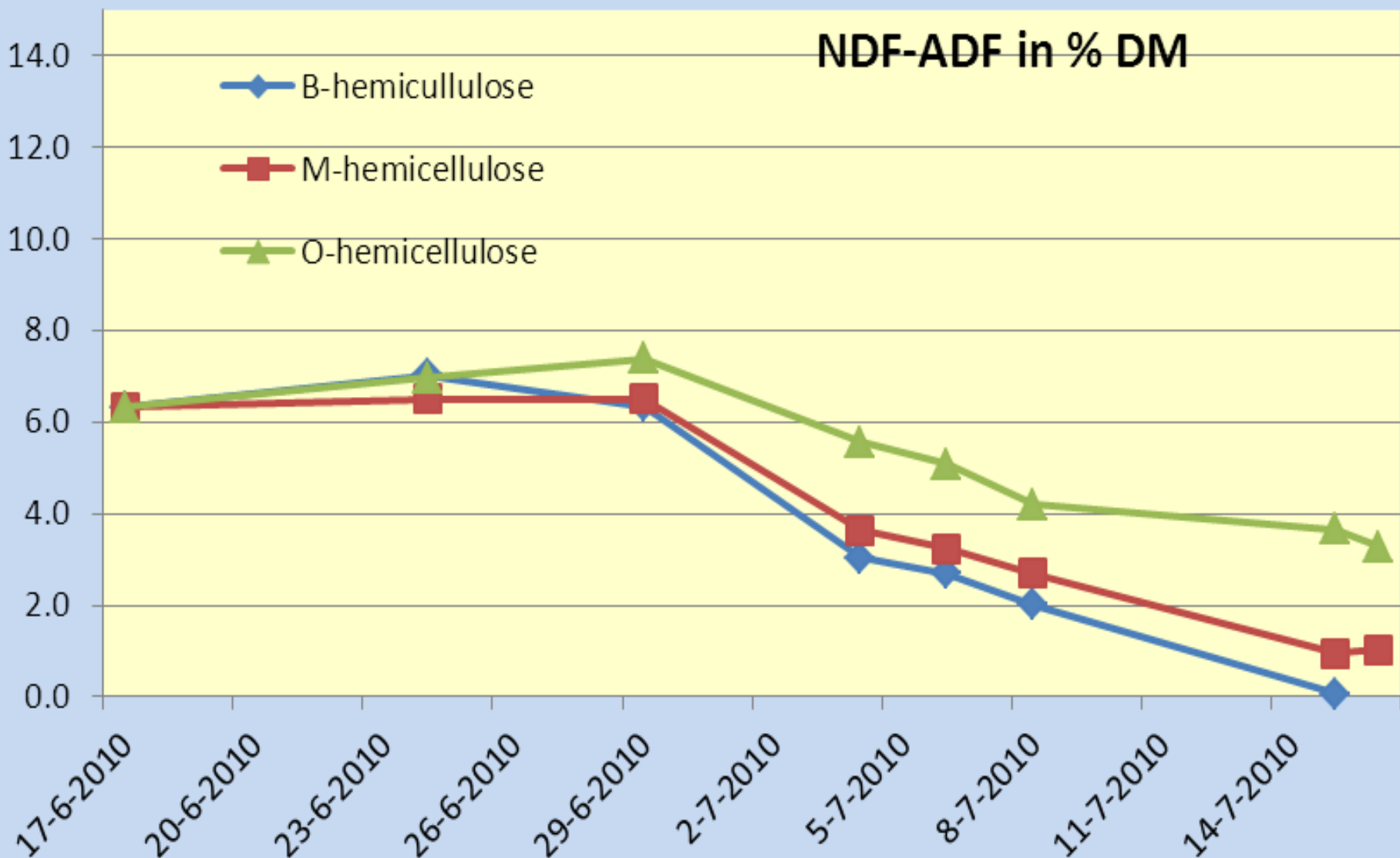


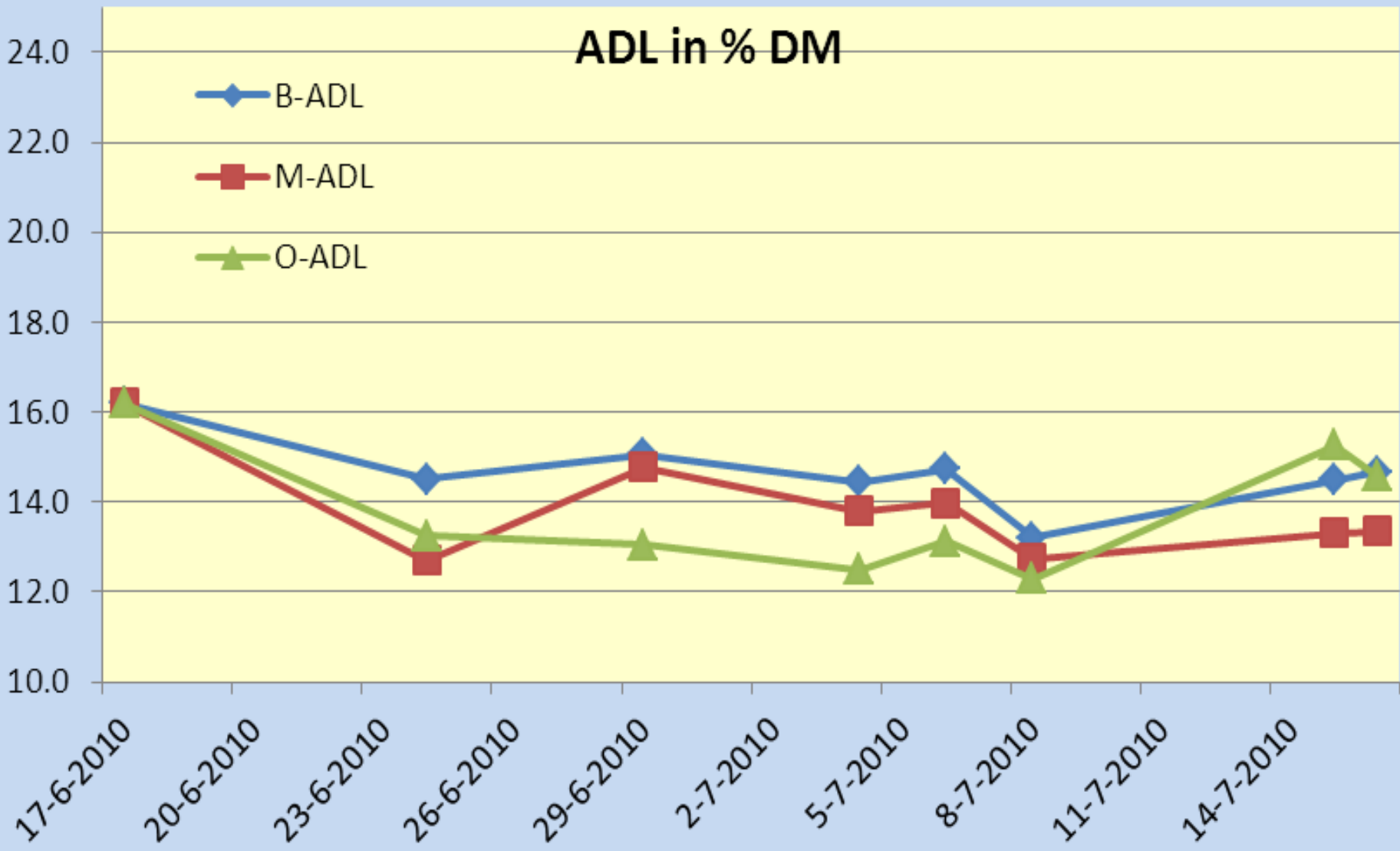


NDF in % van de verhouding NDF/as bij aanvang

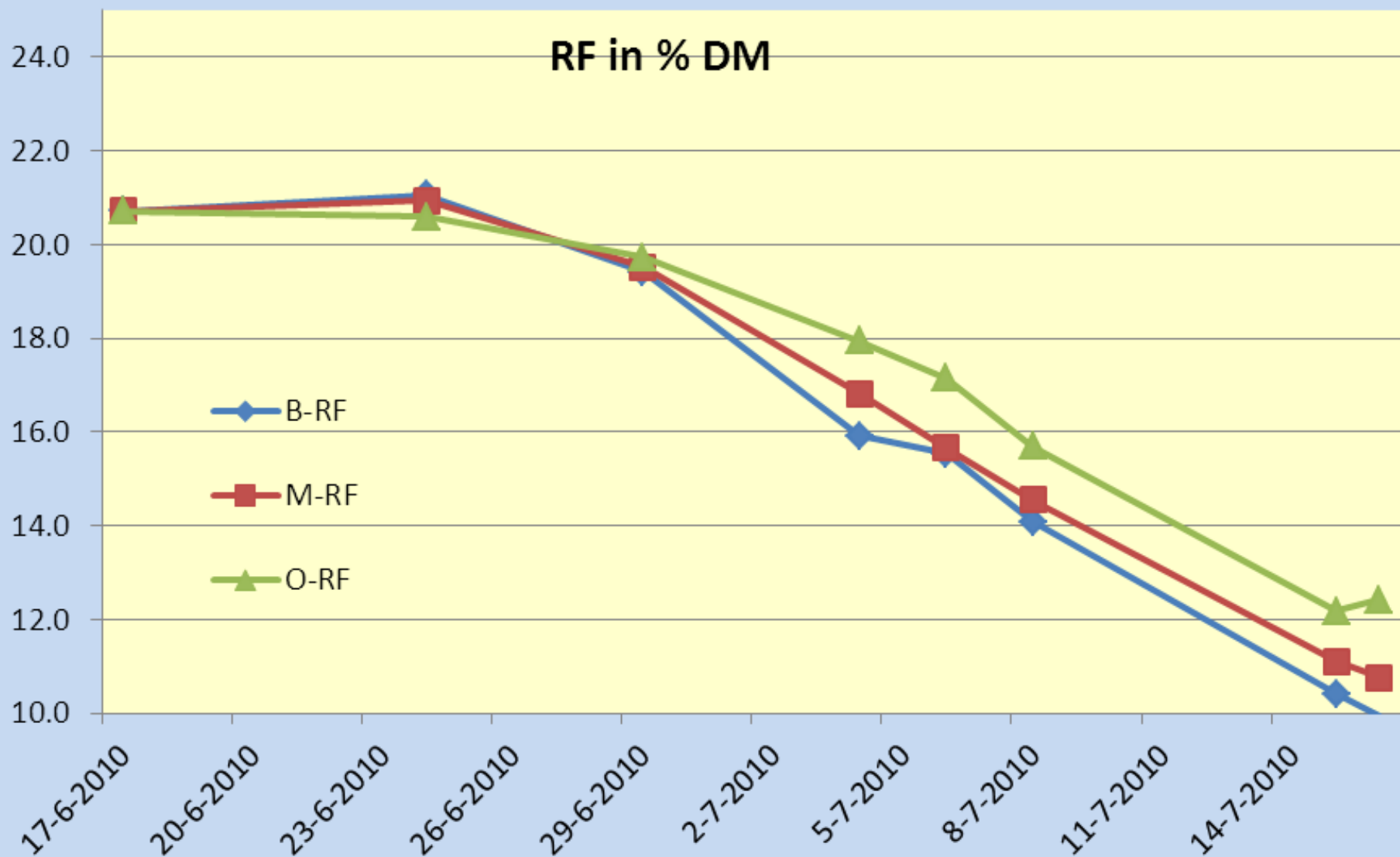


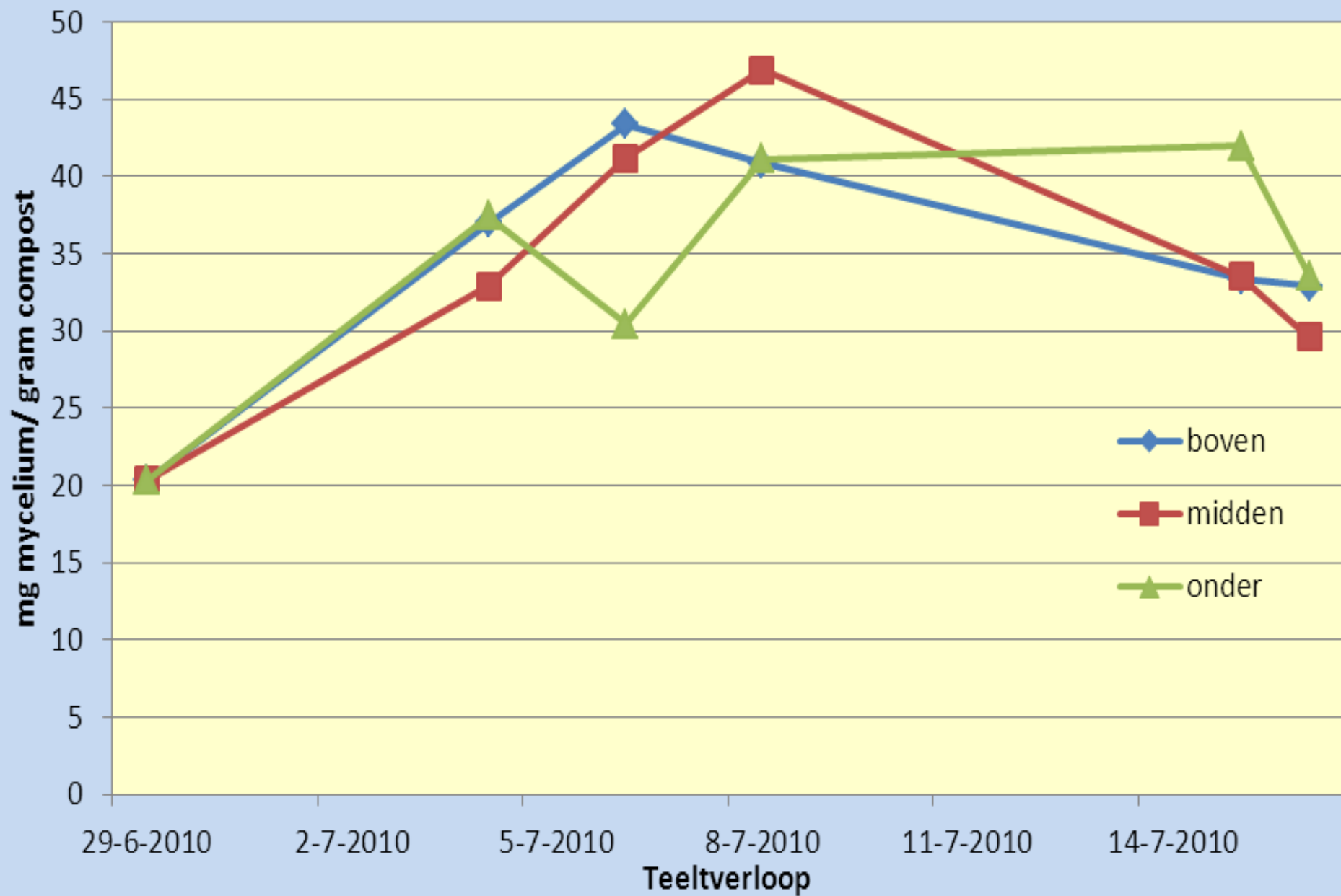






RF in % DM

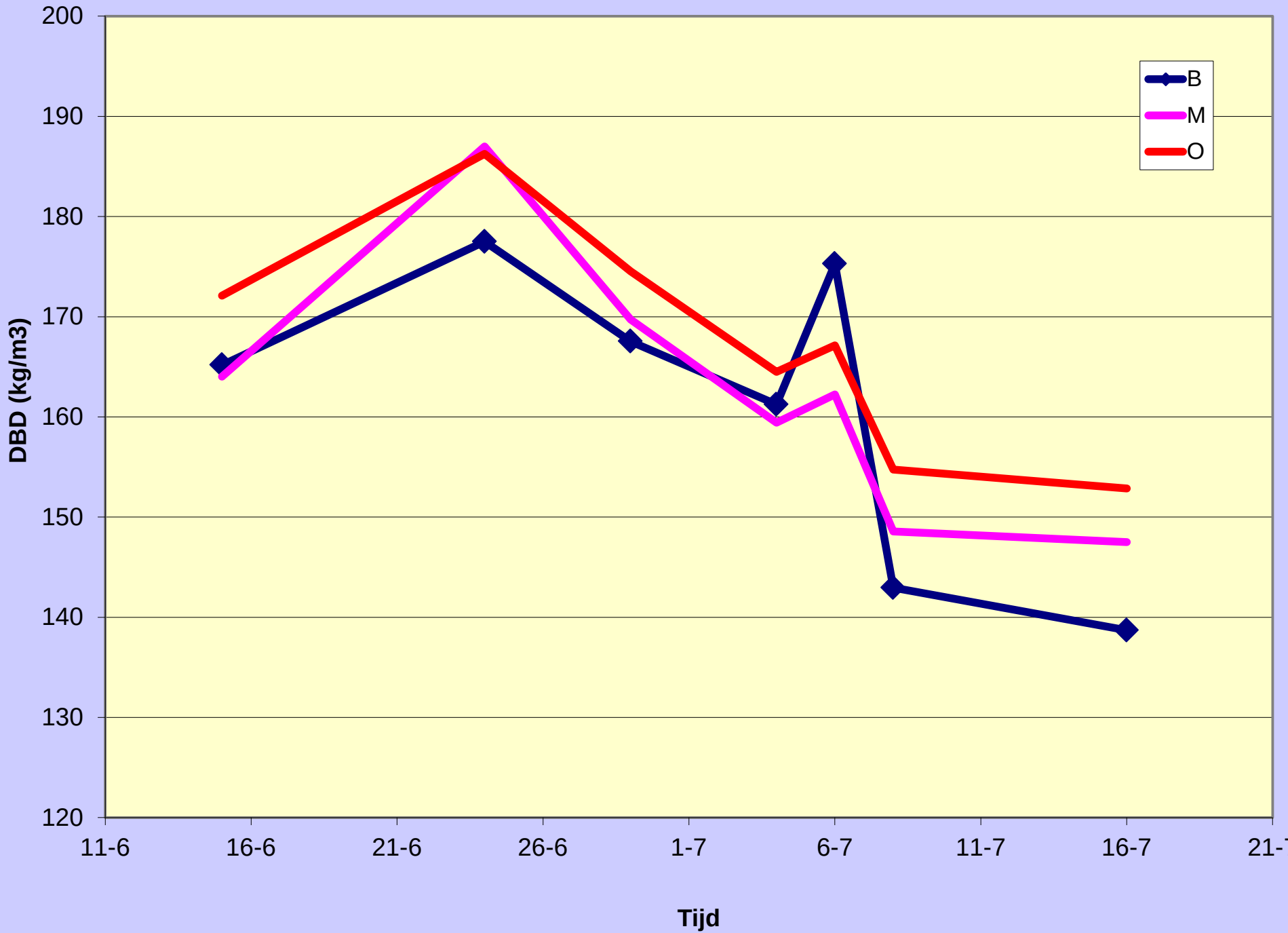


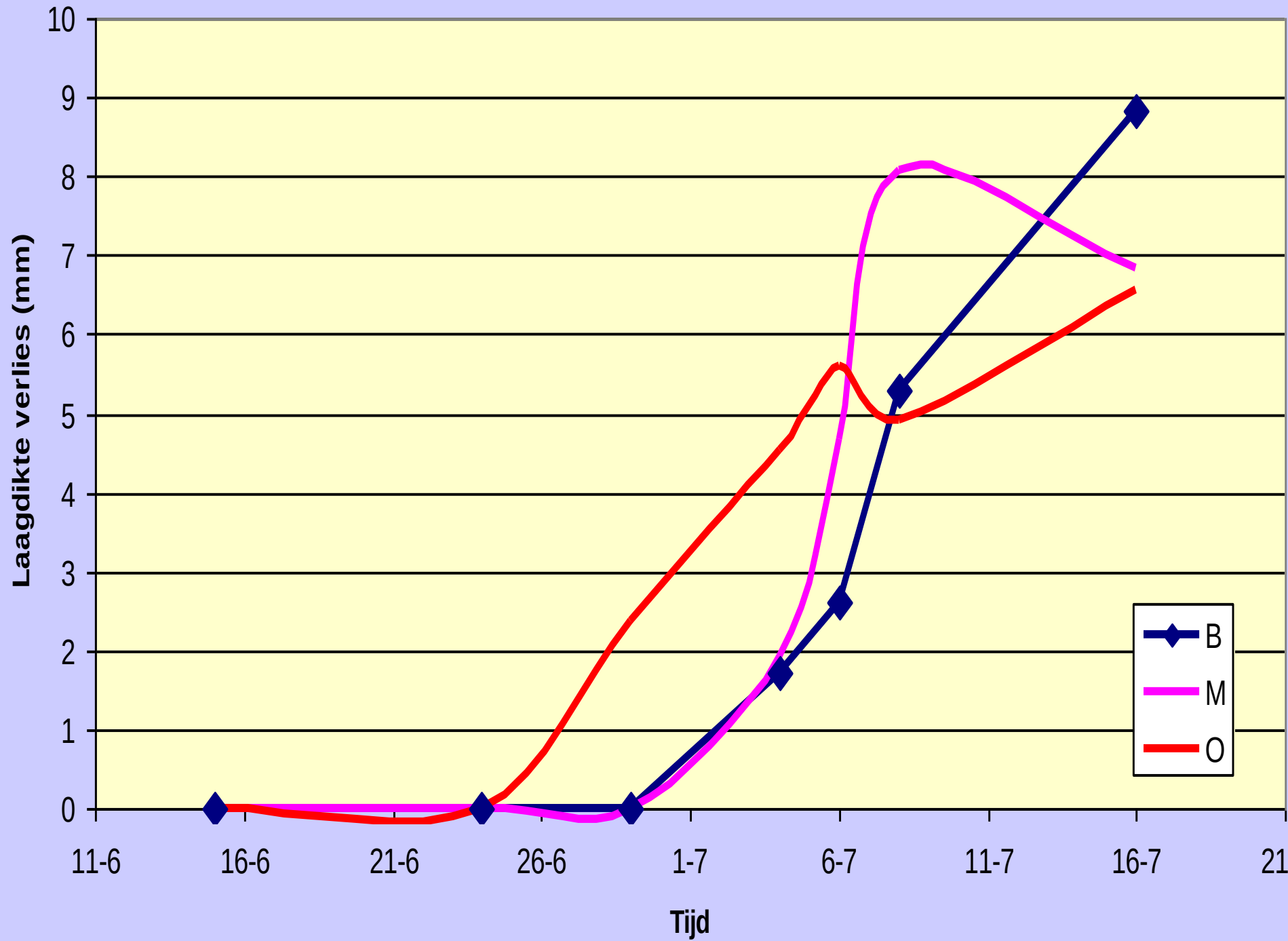


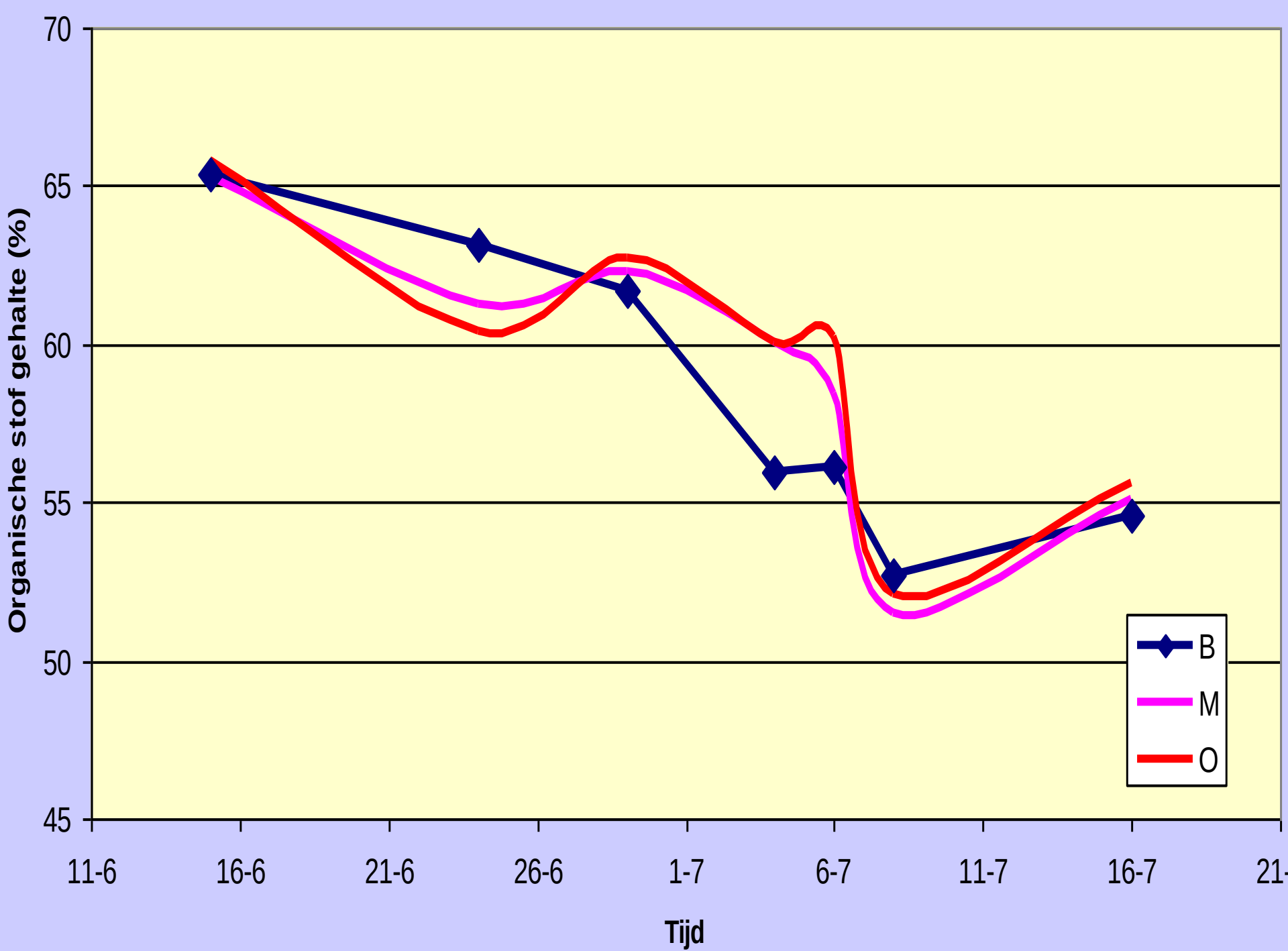
Tabel 3. Absolute hoeveelheden voeding in compost (A), vrijgekomen uit compost (B) en in champignons (D).

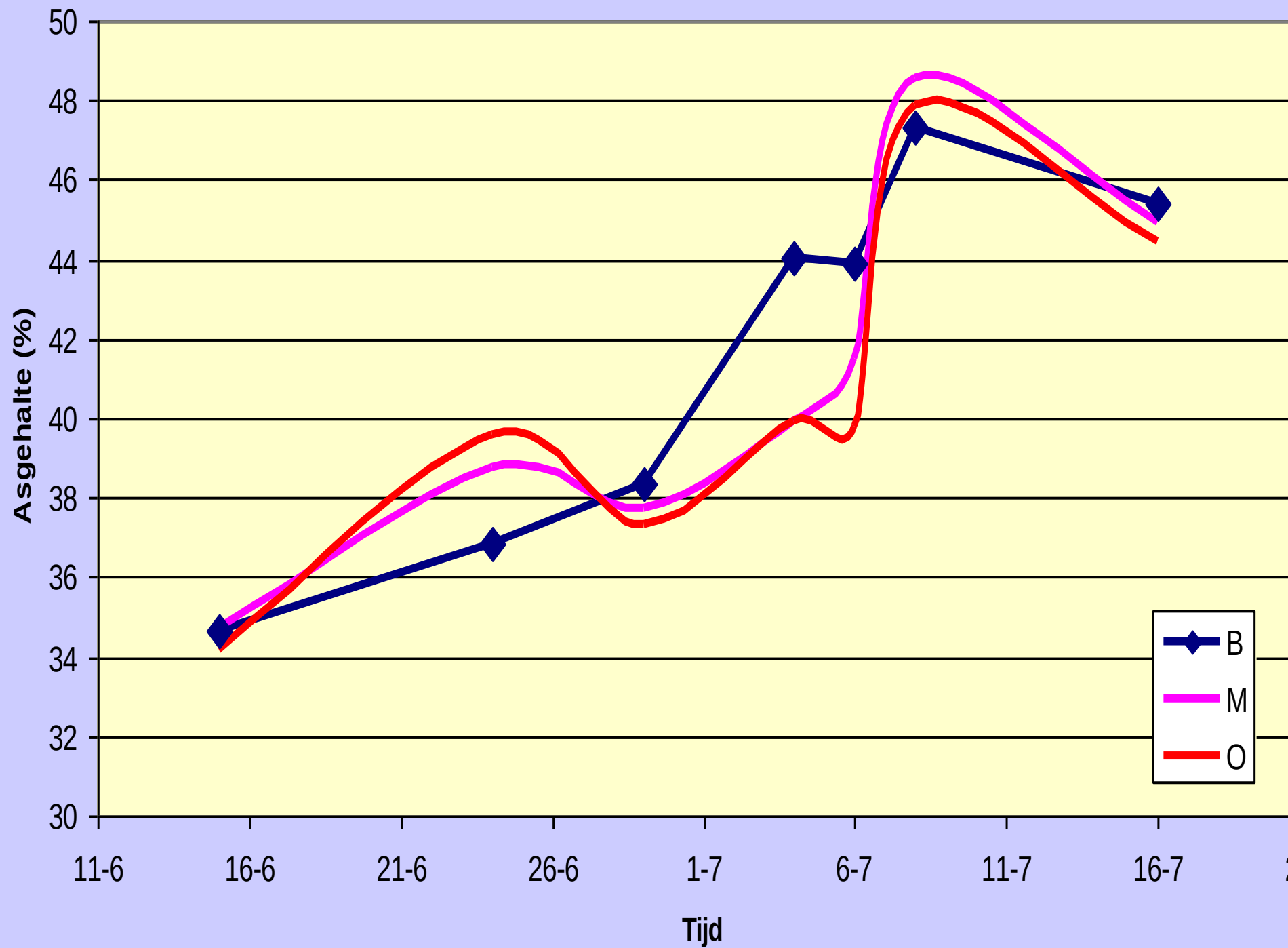
	A	B	C (B/A)	D	E (D/B)	F	G (F/D)
	Ml.m ⁻²			M.m ⁻²		M.m ⁻²	
N-tot.	53.7	10.1	19%	7.5	75%	1.8	23%
K	15.7	2.9	18%	2.6	90%	9.2	350%
Na	2.6	0.2	7%	0.1	51%	1.5	1722%
Ca	20.7	3.8	18%	0.6	15%	1.7	298%
Mg	3.8	0.2	5%	0.2	81%	1.1	679%
S	13.3	3.9	29%	0.3	7%	5.8	2197%
P	4.5	0.9	21%	0.8	88%	0.6	77%
	mM.m ⁻²						
	mMol.m ⁻²			mM.m ⁻²		mM.m ⁻²	
Fe	577.3	52.1	9%	12.7	24%	4.3	34%
Mn	96.2	6.9	7%	0.8	11%	7.2	918%
Zn	55.2	6.6	12%	2.8	43%	1.9	69%
B	38.3	8.5	22%	1.2	14%	4.2	363%
Cu	11.5	1.8	15%	1.3	71%	1.3	105%
Mo	0.7	0.1	18%	0.0	15%	0.1	315%

Kolom A:	Voedingshoeveelheid in de compost bij de start.
Kolom B:	Voedingshoeveelheid verdwenen uit compost (start – eind).
Kolom C:	De verdwenen hoeveelheid voeding in % (Kolom B / A).
Kolom D:	Voedingshoeveelheid opgenomen in de champignons en voetjes.
Kolom E:	Opgenomen voeding als % van verdwenen (Kolom D/ B).
Kolom F:	Voeding gemiddeld in oplossing.
Kolom G:	Voeding in oplossing als % van de opname (Kolom F / D).







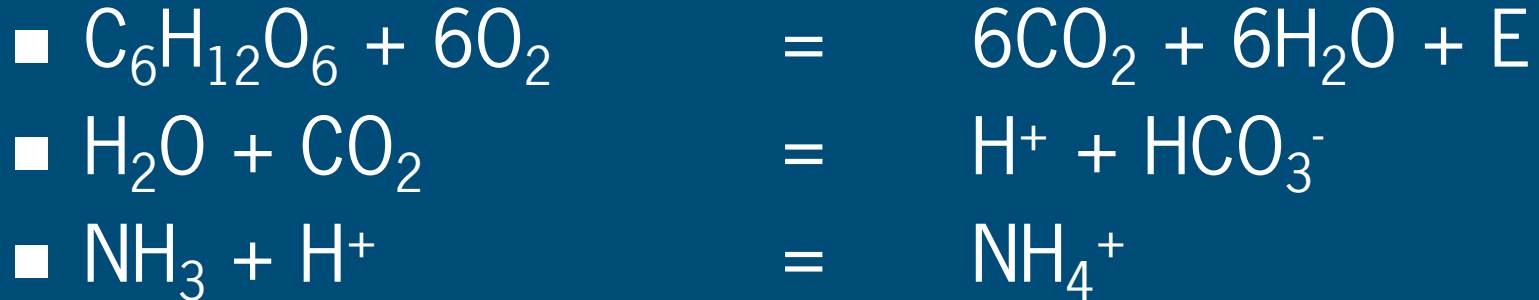


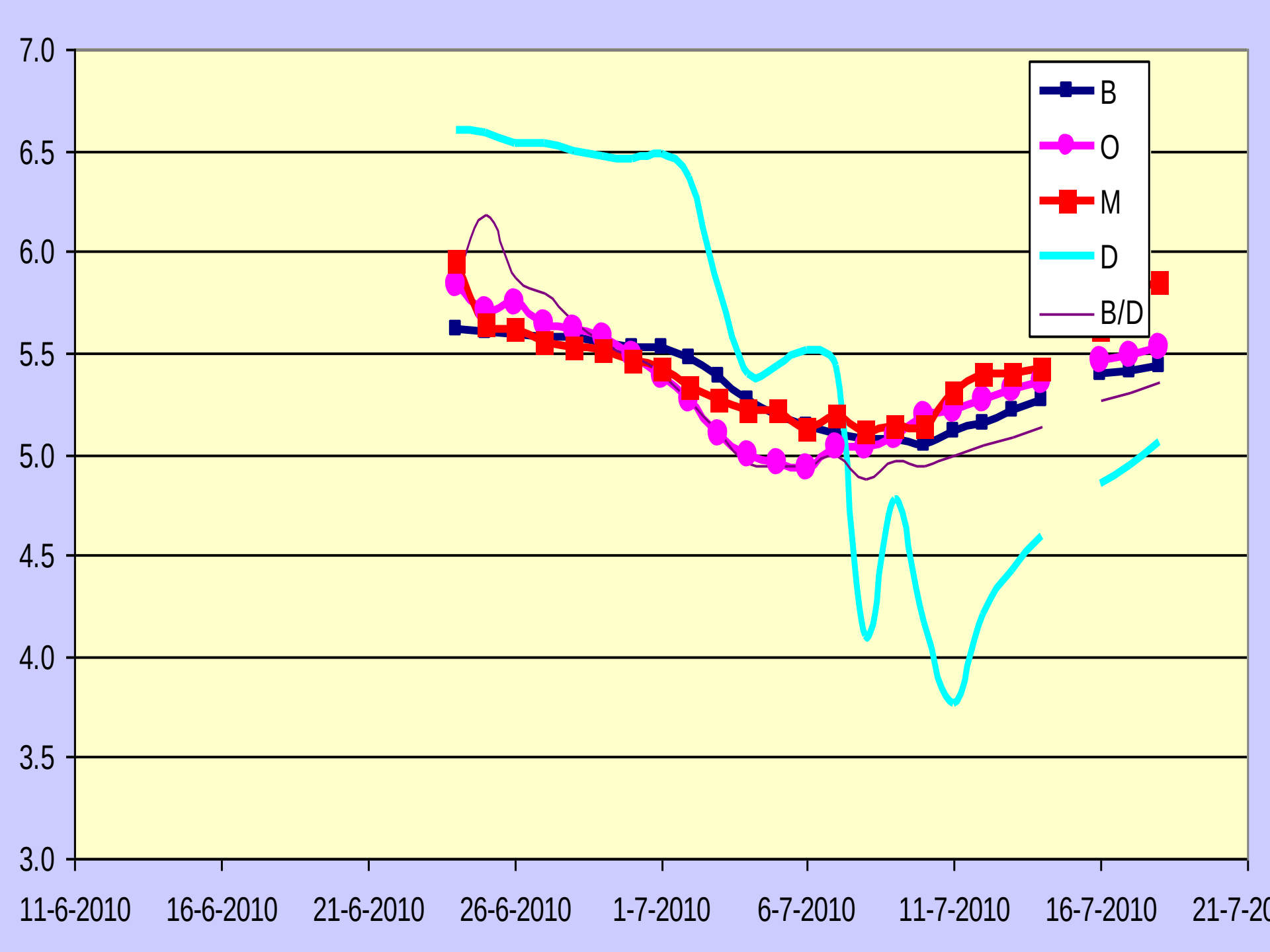
		aanvang %	einde %	aanvang kg.m-2	einde kg.m-2	verbruik kg.m-2	verbruik %
droge compost				30.9	26.2		15%
as		31	38	9.6	9.9	-0.4	0
NDF		45	30	13.9	7.9	6.1	
ADF		37	30	11.4	7.9	3.6	
hemicellulose				2.5	0.0	2.5	100%
ADL lignine		16	15	4.9	3.9	1.0	21%
NDF-ADL cellulose				6.5	3.9	2.6	40%
oplosbare os		24	32	7.4	8.4	-1.0	0
		100	100				

Zuurstof

- ❑ Boven 17.4%
- ❑ Midden 14.5%
- ❑ Onder 13.2%

CONCLUSIES





CONCLUSIES balansen

- 2.5 kg compost C
- 1.5 kg (60%) C als koolzuurgas afvoer
- 1.2 kg (40%) C als champignons en voetjes
- 53 liter uit (37 watergift + 12 inzakken + 4 vertering)
- 52 liter waterdamp afvoer (23 ventilatie + 29 champignon)
- 77 MJ/m² verbrandingsenergie
- 60 MJ/m² verdampingsenergie
- Voedingsverlies 15 mol/m² (12% excl 4% CaSO₄)
- Voedingsopname 12 mol/m²

CONCLUSIES uitkomsten

- Hemicellulose uitgeput
- Fosfaat, ijzer, mangaan en zink uitgeput?
- EC blijft stabiel en hoog (30)
- pH blijft stabiel en laag (5.3)

CONCLUSIES methoden

- Voeding in absolute getallen; % verhullen
- Verteringsmethoden beschrijven
- Persvochtmethoden ipv 1:1.5

CONCLUSIES methoden

- Vocht : gewicht in plaats van FD
- O₂ CO₂ : in meetbuizen met flexibele aansluiting
- EC : persvochtmethoden ipv 1:1.5
- Dichtheid :
- Hoogte :
- Lagen : Verdelen met netten!
- CO₂

Wageningen UR Glastuinbouw

Innovaties vóór en mét de glastuinbouw

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