



Price-list 2012
Naktuinbouw Laboratories

Table of Contents

Table of Contents	1
Naktuinbouw Laboratories	2
Information about the price-list.....	3
Contact with Naktuinbouw Laboratories	4
Testing for Nematodes.....	5
Diagnostic	8
Health testing	
Floriculture Crops.....	9
Vegetable Crops.....	12
Seed Analysis	17
Variety Identification	19
Arboriculture Crops and Fruits	20
General Terms and Conditions	21

Contacting Naktuinbouw Laboratories

You can contact the Laboratory Administration directly for any questions and assignments.

Phone. +31 71 332 61 56

Fax +31 71 332 63 69

e-mail laboratoria@naktuinbouw.nl

Naktuinbouw Laboratories

Certainty through laboratory testing

Healthy flowers, trees and vegetables grow from healthy and vigorous propagation material. Seeds, plants and trees that appear perfectly normal at first sight may still have quality deficiencies or carry harmful viruses, bacteria, fungi, nematodes or other organisms.

Laboratory tests offer a way of ascertaining the quality of your propagation material. Our routine laboratories can test how healthy your propagation material is and can determine the germination rate of seed and its ability to grow into a useful plant. Naktuinbouw Laboratories has state-of-the-art facilities and various testing methods and procedures at their disposal, giving them the knowledge and means to offer you this certainty. And where laboratory techniques are not sufficient, test plants are used to detect pathogens and to make diagnoses. Our team of specialists is ready to help you.

Diagnostics

The Naktuinbouw Diagnostics concept unites the practice of horticulture and the diagnosticians and the researchers of the Naktuinbouw Laboratories. This concept includes making reliable diagnoses of diseases and pests, as well as analysing cultivation problems. This combination of knowledge and expertise on propagation, production and plant diseases is the unique power of our Diagnostics concept. This combination of knowledge cannot be found anywhere else in horticulture. This makes this concept a powerful tool for propagators and growers of flowers, trees and vegetables.

Making ligneous crops, small fruit and strawberries free from viruses

Arboricultural crops (including apple, pear, small fruit, strawberry and rose) are made free from viruses by means of various treatments, including heat treatment, at the Naktuinbouw Test Centre in Horst. The propagation material of such crops is tested for several years to ensure that it is permanently free from pathogens. In addition, facilities are available for storing the material under controlled conditions. A new service is the possibility to import material from third countries for trial objectives via a legalised channel under EC guideline 2008/61/EG. After the obligatory quarantine procedure, the Test Centre in Horst will draw up a health statement for customs clearance so that the material is released for use and marketing in the EU.

Research & Development

Naktuinbouw laboratories works with the latest techniques to translate the tests, developed at universities and institutions all over the world, into working practice. The Naktuinbouw Laboratories Research & Development specialists are working on the application of new methods to detect diseases, identify pathogens and varieties and determine resistance.

Certification and accreditation

Naktuinbouw Laboratories is ISO 9001:2008 certified and the Naktuinbouw Seed Analysis Laboratory is accredited by ISTA (International Seed Testing Association).

Where possible, we work with officially validated techniques and methods. Where quarantine organisms are concerned, these methods have been accredited by the Plant Protection Service of the Netherlands.

Other Naktuinbouw activities

You can find additional information about Naktuinbouw Laboratories and our other departments such as Inspections, Varieties & Trials on our website www.naktuinbouw.nl.

Naktuinbouw Laboratories continuously adjusts its range of services to match the actual needs of the sector and of testing programmes. We trust that our range of services will also offer added value to you. We are always open to your suggestions.

Yours sincerely,

The Naktuinbouw Laboratories Team

Naktuinbouw Laboratories

Basic fee 2012

Handling costs are incurred for every assignment. If more samples of the same crop are jointly registered in one assignment, the following applies: the larger the assignment, the lower the costs per sample. You can find graduated scales for calculating the bases rates for every individual laboratory in this listing of our rates. The graduated scale is different for the various products. No base rate is applied to diagnostics. There is no graduated scale for the base rate for arboricultural crops.

General instructions on submitting samples

- The material must be packaged in plastic and the packaging must be sealed properly.
- Send the sample in a sturdy box. Secure the packing list to the outside of the box.
- Liquid samples must be submitted in vapour-tight packaging.
- If you state on your shipment that it is URGENT and has to be given priority, the sample will be prepared and tested as soon as possible. The rate for urgent assignments will apply.

Additional instructions

Sending seed

- Please submit at least twice the amount of seed required for Naktuinbouw certification testing, so that no delays will occur if the test has to be repeated.
- Since the reliability of health tests may be affected if seed has been treated, preferably untreated seed samples should be submitted.
- If seed has been disinfected, please inform us accordingly.

Submitting material for diagnostic testing

- Package roots and leaves in such a way that leaves cannot be polluted by soil, e.g. by wrapping the roots in a separate plastic bag and sealing it with a rubber band around the stem.
- Good diagnosis requires healthy material to be sent as a reference along with the material affected by disease.
- Send a whole plant if possible. Leaf symptoms may be caused by root problems.
- The submission form for diagnostic assignments can be found on the website or can be requested from Naktuinbouw Laboratories Administration.

Submitting material to make it free from viruses

- Special conditions apply to the submission of material which has to be made free from viruses. You can obtain more information at Naktuinbouw Test Centre in Horst; toetscentrum@naktuinbouw.nl or by phone on +31 77 398 59 19.

Naktuinbouw Laboratoires

Contacting Naktuinbouw Laboratories

You can contact the Laboratory Administration directly for any questions and assignments.

Tel. +31 71 332 61 56

Fax +31 71 332 63 69

e-mail laboratoria@naktuinbouw.nl

Shipping address for all samples

Naktuinbouw

attn. Administratie Laboratoria

P.O. Box 40

2370 AA Roelofarendsveen,

The Netherlands

Delivery address for courier services

Naktuinbouw

attn. Administratie Laboratoria

Sotaweg 22

2371 GD Roelofarendsveen,

The Netherlands

If you have any specific laboratory questions regarding diseases in fruit crops, arboricultural crops or strawberries:

Test Centre Horst

Tel. +31 77 398 59 19

Fax +31 77 398 34 33

e-mail h.konings@naktuinbouw.nl

Terms and conditions of delivery and disclaimer

- The General Terms and Conditions of Naktuinbouw apply to all services provided by the Naktuinbouw Laboratories (registered with the Chamber of Commerce and Industry for Rijnland in Leiden, the Netherlands, under no. 41150707). You can find these terms and conditions at the end of this brochure and on our web site www.naktuinbouw.nl
- All amounts stated are excluding VAT. Changes to rates are reserved.
- If testing / diagnosis is not carried out at Naktuinbouw but is subcontracted to third parties after having consulted the party submitting the samples, the corresponding costs will be charged to the party submitting the samples.
- If extra activities are necessary to prepare the testing of samples submitted, the time spent on such activities will be invoiced.
- If you state on your package that it concerns an **URGENT** assignment, the relevant rate will be charged.
- Additional testing may be required if a possible pathogen is found. We advise you to take the extra costs of confirmation testing into account in advance.
- The results provided by the Laboratory of tests or assessments carried out on samples submitted by establishments, only relate to the actual sample tested and not to the lot of material concerned, unless Naktuinbouw states otherwise.

Testing for Nematodes

Nematodes can seriously harm crops. Preventative testing of the soil, seeds and plant material can prevent this. Naktuinbouw offers testing for various plant-parasitic nematodes which may harm your crops. For example, the presence of *Xiphinema* and *Longidorus* species in soil may be demonstrated as part of the Elite certification procedure for strawberries.

Onion sets, or seed, can only be marketed if accompanied by a statement that the onion sets or the seed in question are free from stem nematode (*Ditylenchus dipsaci*). Other crops also require a statement that they are free from nematode when exported to certain destinations. Naktuinbouw can help you with this. If you would like further information, please contact the Laboratories Administration Team.

Composition of the test rate

The total test rate is composed of two rates: a base rate and a test rate. The base rate is a handling fee which depends on the number of samples of the same crop submitted for the same test. As a result, this base rate is a variable rate according to the following graduated scale:

Number of samples of the same crop for the same test	Basic fee per sample
1	16.50
2	13.00
3 – 5	11.00
6 - 7	7.75
>7	5.75

Testing fee

All rates are excluding sampling. The company has to take care of sampling or you can ask Naktuinbouw to do this for you. You can contact Naktuinbouw Inspections Department to take samples for certification purposes.

STANDARD TESTS on SOIL

These tests are performed on 200 ml. of soil

<i>Xiphinema</i> spp. / <i>Longidorus</i> spp.	20.50
Standard test for one plant parasitic nematode*	36.25
Standard test for all plant parasitic nematodes* present	86.75
Extra fee for incubation (This will take two weeks of additional time)	20.50
Extra fee for determination on species level	15.75
Verification test (if applicable)	15.75

STANDARD TESTS on PLANTMATERIAL

Standard test for one plant parasitic nematode*	41.25
Standard test for all plant parasitic nematodes present *	52.50
Extra fee for incubation (This will take two weeks of additional time)	20.50
Extra fee for determination on species level	15.75
Verification test (if applicable)	15.75
Determination <i>Ditylenchus</i> spp. in consumption onions	All inclusive (exc. V.A.T) 129.50
Determination <i>Radopholus</i> spp.	All inclusive (exc. V.A.T) 129.50

Testing for Nematodes

STANDARD TESTS on WATER

Standard test for all plant parasitic nematodes present *	42.00
Extra fee for determination on species level	15.75
Verification test (if applicable)	15.75

STANDARD TESTS on SEED

Ditylenchus spp.	25.75
Aphelenchoides spp.	25.75
Extra fee for determination on species level	15.75
Verification test (if applicable)	15.75

Other

Rate per hour for extra research (if needed)	110.00
Surcharge priority treatment	65.00
Sampling costs (per specimen)	On request

*Naktuinbouw can test for the following genera:

Aphelenchoides spp.

Aphelenchus spp.

Ditylenchus spp. (stem nematode)

Longidorus spp.

Meloidogyne spp. (root knot nematode)

Paratrichodorus spp.

Paratylenchus spp.

Pratylenchus spp. (root lesion nematode)

Radopholus spp.

Rotylenchus spp.

Trichodorus spp. (virus transmitting nematode)

Tylenchorhynchus spp.

Xiphinema spp.

Diagnosics

Diagnosics unites the practice of horticulture, the diagnosticians and the researchers of Naktuinbouw Laboratories. The Naktuinbouw diagnostics concept was introduced under this motto in November 2003. Many parties have already made use of this concept to have reliable diagnoses made of diseases and pests, as well as to have cultivation problems assessed.

Composition of the test rate

Our Diagnostics Team works with a fixed rate. The advantage for the person submitting samples is that the costs of diagnostic testing are known in advance. And savings can also be made on the handling and administrative costs, which will help keep the rates down. We have seen that there is demand for having samples tested for certain viruses fast. This often concerns TSWV, INSV, PepMV, CyMMV and ORSV.

Naktuinbouw has the facilities to enable such limited-scope diagnoses to be carried out rapidly, so that the person submitting the sample will often get the results within one day.

Price for diagnosis

a	Standard diagnose, first sample	207.00
	Each additional sample	96.00
b	Limited diagnose, first sample (usually visual or microscopic assessment)	162.00
	Each additional sample	96.00
c	Testing for up to 5 viruses, first sample	111.00
	Each additional sample	51.00
d	PCR testing per sample*	97.00
e	Rate per hour for additional work (if needed)	125.00
	*PCR testing is carried out only when needed to make a final identification of a pathogen.	
f	Verification test (if applicable)	32.50
	Each additional sample	15.00

- The rate for any succeeding sample only applies to samples of the same assignment and the same crop.
- If an assignment is clearly so extensive that it cannot possibly be done for these rates, we will contact you in advance.
- Extra costs for additional services provided, such as sampling or transport, will be invoiced.

Health testing of Floriculture Crops

Virus tests

A quick test is available for some 80 viruses in floricultural and arboricultural crops: the ELISA. This technique can be used routinely and produces results fast. ELISA is a robust technique with reliable results and a relatively low cost price compared to other techniques. Testing with indicator plants or PCR is also possible. These tests are only carried out on leaf material.

Composition of the test rate

The total test rate is composed of two different rates: the base rate is a handling fee which depends on the number of samples submitted for testing for the same series of viruses. This may concern different crops. The base rate for ELISA testing is made up of a fixed part of € 48.00 and a variable part, according to the following graduated scale:

Number of specimens per series of the same virus	Basic fee per ELISA per series of the same virus
1 - 10	1.25
11 - 25	0.80
26 - 65	0.75
66 - 149	0.67
150 or more	0.55

Prices for ELISA

Group 1

ALCV (LSV), ALMV, AMV, ArMV, BYMV, CarMV, CERV, CMV-AE, CVB, CymMV, FOV, FreMV, HVX, INSV, IYSV, LYSV, ORSV, OYDV, PDV, PepMV, PFBV, PLPV, PNRSV, Potyvirus, PPV, PVX, ScrMV, SgCV (CbMv), TAV, TBRV, TBSV, TMV-WU1, TNV1, TNV2, ToMV-D-O3, ToRSV, TRSV, TRV, TSV, TSWV 1.75

Group 2

ACLSV, AFBV, ALSV, APMV, ASGV, BBWV1, BBWV2, BLMV, BPeMV, BSV, CLRV, CLV, CMV, CMV-B, CNFV, CRSV, CVMV, DsMV, KLV, KMV, LMV, NeLV, NeYSV, PapMV, PEBV, PEMV, PMMoV, PopMV, PSbMV, PVY, TMGMV, TYLCV 2.20

Group 3

AFMOV, BBRMV, BBTv, BSSV, BWYV, CGMMV, DMV, HdRSV, LMoV, NMV, NVX, NVY, PLCV, PnMV, RBDV, RMV, RRSV, SFBV, SLRSV, SLV, SYNV, SYSV 2.60

Group 4

Freesia mosaic virus corms and cormels 4.10

Example price calculation:

9 varieties of Petunia need to be tested on 22 viruses (group 1).

9 x 22 = 198 tests

Basic Fee	€ 48.00
9 x 22 viruses = 198 viruses at 0.55	€ 108.90
9 x 22 viruses = 198 viruses at 1.75 for the test	€ 346.50
Total amount	€ 502.40

Health testing of Floriculture Crops

Other tests

Virus tests and viroids

Seed and plant material can be tested for the presence of viruses or viroids, using the latest new molecular techniques.

Testing for fungi

Testing for fungi is usually done by a plating method, combined with identification by microscope. New DNA techniques are used for sensitive detection of e.g. *Fusarium* species in cyclamen and begonia. Testing for fungi can also be done on soil samples, e.g. for *Verticillium dahliae* and *Fusarium oxysporum* spp.

Testing for bacteria and phytoplasms

Seed and plant material can be tested for the presence of bacterial diseases. Some of the methods used are: plating on semi selective media, pathogenicity tests, immunofluorescence (IF) and PCR.

Composition of the test rate

The total test rate is composed of two rates: a base rate and a test rate. The base rate is a handling fee which depends on the number of samples of the same crop submitted for a test for the same virus, fungus or bacteria. As a result, this base rate is a variable rate according to the following graduated scale:

Number of specimens sent simultaneously	Basic fee per specimen
1	24.00
2	19.50
3	17.00
4	14.00
5 or more	11.50

Health Testing of Vegetable Crops

Testing for bacteria and phytoplasmas

Seed and plant material can be tested for the presence of bacterial diseases. Some of the methods

Testing for fungi

Testing for fungi is usually done by a plating method, combined with identification by microscope. New DNA techniques are used for sensitive detection of e.g. *Fusarium* species in cyclamen and begonia. Testing for fungi can also be done on soil samples, e.g. for *Verticillium dahliae* and *Fusarium oxysporum* f.sp. *asparagi*.

Virus tests and viroids

Plant material and/or seed can be tested for the presence of viruses or viroids, using the latest new molecular techniques (PCR, R-PAGE).

Composition of the test rate

The total test rate is composed of two rates: a base rate and a test rate. The base rate is a handling fee which depends on the number of samples of the same crop submitted for a test for the same fungus or bacteria. As a result, this base rate is a variable rate according to the following graduated scale:

Number of samples same crop - same test	Base rate per sample
1	24.00
2	19.50
3	17.00
4	14.00
5 or more	11.50

Test rates

If confirmation tests have to be carried out, they are added to the rates of the basic test. Where combination testing is applicable, you can find the relevant rates with the individual tests.

Health Testing of Vegetable Crops

<u>Tests Crop / Pathogen</u>		Basic test	IF / Microsc.	PCR	IF + PCR	Bio test
<u>Asparagus</u>						
Pathogene <i>Fusarium</i> spp. for asparagus	(300 seeds)	105.00	100.50			100.50
On soil samples	(2.5 till 5 litre soil)					
(<10 samples) per specimen		122.50				
(10 – 49 samples) per specimen		114.00				
(50 – 99 samples) per specimen		109.00				
(>100 samples) per specimen		104.00				
<u>Basil</u>						
<i>Fusarium oxysporum</i>	(200 seeds)	79.50	86.00			
<u>Bean</u>						
<i>Xanthomonas axonopodis</i> pv. <i>phaseoli</i> (XAP) (for both fuscans and non-fuscans types)	(5,000 seeds)	138.00	45.00	57.00		
<i>Pseudomonas savastanoi</i> pv. <i>phaseolicola</i> (PSP)	(5,000 seeds)	145.50	45.00	57.00		
<i>Pseudomonas syringae</i> pv. <i>syringae</i> (PSS)	(5,000 seeds)	178.50		97.00		
- Combination tests:						
XAP, PSP or PSS	(5,000 seeds)					
2 pathogens		252.00				
3 pathogens		399.00				
*Confirmation tests will be counted per test						
Bean common mosaic virus	(400 seeds)	207.00		57.00		
<i>Ascochyta</i> spp.	(200 seeds)	93.00	36.00			
<i>Colletotrichum lindemuthianum</i>	(200 seeds)	138.00	57.00			
<u>Beetroot</u>						
<i>Phoma betae</i>	(200 seeds)	75.00	36.00			
	(400 seeds)	132.00				
	(1,000 seeds)	223.50				
<u>Cabbage and Radish</u>						
<i>Phoma lingam</i>	(400 seeds*)	102.00	36.00			
	(1,000 seeds)	156.00	36.00			
	(3,000 seeds)	283.50	36.00			
	(10,000 seeds)	940.00	36.00			
<i>Plasmodiophora brassicae</i>	(2.5 ltr. soil)	138.00				
<i>Alternaria brassicae</i> and <i>Alternaria brassicicola</i>	(200 seeds)	105.00	57.00			
<i>Pseudomonas syringae</i> pv. <i>Maculicola</i> (PSM)	(2,500 untreated seeds)	122.50		57.00		
	(7,500 untreated seeds)	136.50		57.00		
	(10,000 treated seeds)	157.50		57.00		
	(30,000 treated seeds)	198.00		57.00		

Health Testing of Vegetable Crops

<u>Tests Crop / Pathogen</u>		Basic test	IF / Microsc.	PCR	IF + PCR	Bio test
Combination tests:						
<i>Xanthomonas campestris</i> pv. <i>amoraciae</i> (XCA) and <i>Xanthomonas campestris</i> pv. <i>campestris</i> (XCC)						
<u>Untreated seeds</u>						
Combination test XCA - XCC	(10,000 untreated seeds)	147.00				72.00
	(30,000 untreated seeds)	178.00				72.00
	(40,000 untreated seeds)	240.00				94.50
	(50,000 untreated seeds)	291.00				118.50
	(60,000 untreated seeds)	346.50				139.50
XCA and XCC on basic seed	(max. 10,000 seeds)	75.00				72.00
<u>Seeds treated with warm water</u>						
Combination test XCA and XCC	(10,000 treated seeds)	187.50				72.00
	(30,000 treated seeds)	216.00				72.00
	(40,000 treated seeds)	274.50				94.50
	(50,000 treated seeds)	343.50				118.50
	(60,000 treated seeds)	405.00				139.50
	(100,000 treated seeds)	424.50				171.00
<i>Xanthomonas campestris</i> pv. <i>amoraciae</i> (XCA) and <i>Xanthomonas campestris</i> pv. <i>campestris</i> (XCC) and <i>Pseudomonas syringae</i> pv. <i>Maculicola</i> (PSM)						
<u>Untreated seeds</u>						
Combination test XCA, XCC and PSM	(10,000 untreated seeds)	240.00		57.00		72.00
	(30,000 untreated seeds)	271.50		57.00		72.00
<u>Carot</u>						
<i>Xanthomonas hortorum</i> pv. <i>carotae</i>	(10,000 seeds)	144.00		97.00		
<i>Alternaria dauci</i>	(200 seeds)	73.50				
<i>Alternaria radicina</i>	(200 seeds)	73.50				
Combination test <i>A. dauci</i> en <i>A. radicina</i>	(200 seeds)	88.50				
<u>Celery</u>						
<i>Septoria apiicola</i>	Blotter method (200 seeds)	70.50	36.00			
	(400 seeds)	102.00	36.00			
	Shaking method (10,000 seeds)	52.50				
<i>Phoma apiicola</i>	Blotter method (1,000 seeds)	82.50	36.00			
<u>Corn Salad</u>						
<i>Peronospora valerianellae</i>	Biotest (400 seeds)					90.00
	Biotest (1,200 seeds)					265.50
	Shaking method (1,000 seeds)	93.00				
<i>Phoma valerianellae</i>	(200 seeds)	58.50	36.00			
<u>Curubitaceae</u>						
<i>Acidovorax avenae</i> subsp. <i>Citrulli</i> (grow out)	(10,000 seeds)	306.00	114.00			
	(30,000 seeds)	918.00	114.00			
RT-PCR (moleculair detection) *	(10,000 seeds)	160.00				
* when positive a grow out is advisable to confirm						
Arabis mosaic virus	(3,000 seeds)	105.00				
Cucumber green mottle mosaic virus	(2,000 seeds)	135.00				
Cucumber mosaic virus	(2,000 seeds)	135.00				

Health Testing of Vegetable Crops

<u>Tests Crop / Pathogen</u>		Basic test	IF / Microsc.	PCR	IF + PCR	Bio test
Melon necrotic spot virus	(2,000 seeds)	135.00				
Squash mosaic virus	(2,000 seeds)	135.00				
Tobacco ringspot virus	(2,000 seeds)	105.00				
<i>Fusarium oxysporum</i> en <i>Fusarium solani</i>	(200 seeds)	160.50	166.50			
Combination tests virus:						
CGMMV, CMV, MNSV or SqMV						
2 viruses	(2,000 seeds)	234.00				
3 viruses	(2,000 seeds)	340.50				
4 viruses	(2,000 seeds)	399.00				
Fixed combinations						
3 viruses (CGMMV, MNSV, SQMV)	(4,000 seeds)	669.00				
3 viruses (CGMMV, MNSV, SQMV)	(6,000 seeds)	1000.00				
Leek						
<i>Pseudomonas syringae</i> pv. <i>porri</i>	(5,000 seeds)	156.00	57.00	57.00		
<i>Alternaria porri</i>	(200 zaden)	96.00				
Leek Yellow Stripe virus (LYSv)	(Test on leaves)	97.00				
Lettuce						
Lettuce mosaic virus	(2,000 seedlings)	123.50		57.00		
	(2,000 pilled seeds)	186.00		57.00		
	(10,000 seeds)	301.50		57.00		
	(30,000 seeds)	306.00		57.00		
	(60,000 seeds)	364.50		57.00		
<i>Septoria</i> spp.						
	Blotter method (200 seeds)	70.50				
	Shaking method (10,000 seeds)	52.50				
Onion						
<i>Botrytis allii</i>	(400 seeds)	160.50	36.00			
Parsley						
<i>Septoria petroselini</i>						
	Blotter method (200 seeds)	70.50	36.00			
	(400 seeds)	102.00				
	Shaking method (10,000 seeds)	52.50				
Pea						
<i>Pseudomonas syringae</i> pv. <i>pisi</i>	(5,000 seeds)	136.50	45.00	57.00		
Pea seed-borne mosaic virus	(2,000 seeds)	135.00				
Pea early browning virus	(2,000 seeds)	135.00				
Combinationtest PSbMV and PEBV	(2,000 seeds)	186.00				
<i>Ascochyta</i> spp.	(200 seeds)	93.00	36.00			
<i>Fusarium oxysporium</i>	(200 seeds)	90.00	86.00			
Pepper						
<i>Xanthomonas campestris</i> pv. <i>vesicatoria</i> (XCV)	(10,000 seeds)	151.50	49.50	57.00		
	(30,000 seeds)	177.00	49.50	57.00		
Tobamovirus	Bio test (3,000 seeds)					156.00
Tobacco ringspot virus (TRSV)	(3,000 seeds)	105.00				
Tobacco mosaic virus (TMV)	(3,000 seeds)	135.00				

Health Testing of Vegetable Crops

<u>Tests Crop / Pathogen</u>			Basic Test	IF / Microsc.	PCR	IF + PCR	Bio test
Combination test	ToMV-D03, TMV, PMMoV	(3,000 seeds)	145.50				
<u>Spinach</u>							
Cucumber mosaic virus (CMV)		(2,000 seeds)	135.00				
<i>Fusarium oxysporium</i>		(400 seeds)	112.50	87.00			
<i>Cladosporium var.</i>		(200 seeds)	96.00				
<i>Colletotrichum dematium</i>		(200 seeds)	64.50	36.00			
<i>Stemphylium botryosum</i>		(200 seeds)	96.00				
<i>Verticillium dahliae</i>		(200 seeds)	96.00				
<i>Peronospora farinosa</i>	Shaking method	(1000 seeds)	93.00				
Combination tests:							
<i>Colletotrichum dematium</i> and <i>Verticillium spp.</i>		(200 seeds)	145.00	36.00			
<i>Stemphylium botryosum</i> and <i>Verticillium spp.</i>		(200 seeds)	135.00				
<i>Stemphylium botryosum</i> , <i>Verticillium dahliae</i> and <i>Cladosporium var.</i>		(200 seeds)	181.50				
<i>Stemphylium botryosum</i> , <i>Verticillium dahliae</i> , <i>Cladosporium var.</i> and <i>Colletotrichum dematium</i>		(200 seeds)	198.00	36.00			
<u>Strawberry</u>							
<i>Xanthomonas fragariae</i> (IF and PCR)							
		Price per sample				72.00	
Combination Strawberryviruses (SCV SVBV SMOV SMYEV)							
<50 samples		Price per sample			97.00		
>50 samples		Price per sample			81.00		
<u>Sunflower (Helianthus)</u>							
<i>Sclerotinia sclerotiorum</i>		(200 seeds)	90.00				
<u>Tomato</u>							
<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i> (CMM)		(10,000 seeds)	193.50	49.50	57.00		145.50
		(30,000 seeds)	240.00	49.50	57.00		145.50
<i>Xanthomonas campestris</i> pv. <i>vesicatoria</i> (XCV)		(10,000 seeds)	187.50	49.50	57.00		
		(30,000 seeds)	228.00	49.50	57.00		
<i>Pseudomonas syringae</i> pv. <i>tomato</i> (PST)		(10,000 seeds)	193.50	49.50	57.00		
		(30,000 seeds)	220.50	49.50	57.00		
Combination test for detection of CMM, XCV and PST							
-two pathogens**		(10,000 seeds)	309.00				145.50
-three pathogens**		(10,000 seeds)	378.00				145.50
-two pathogens**		(30,000 seeds)	372.00				145.50
-three pathogens**		(30,000 seeds)	469.50				145.50
		(60,000 seeds)	915.00				145.50
**Possible extra charge: Pathogenicity test CMM € 100.50 PCR per pathogen € 57.00							
Tobamovirus (TMV – ToMV D03)		(3,000 seeds)	145.40				156.00
Pepino mosaic virus (PepMV)		(3,000 seeds)	105.00		57.00		75.00
Pepino mosaic virus (PepMV)		(300 leaves)	123.00		57.00		
Pepino mosaic virus (PepMV)	biotest including ELISA	(3,000 seeds)	135.00				
Pelargonium zonale spot virus (PZSV)		(3,000 seeds)	135.00				

Health Testing of Vegetable Crops

Tests Crop / Pathogen		Basic Test	IF / Microsc.	PCR	IF + PCR	Bio test
Arabis mosaic virus (AMV)	(3,000 seeds)	105.00				
Potato spindle tuber viroid/Tomato chlorotic dwarf viroid (PSTVd) (TCDV)	(3,000 seeds)	141.00				
	300 leaves (2 subsamples of 150 leaves) per subsample	67.50				
Tobacco ringspot virus (TRSV)	(3,000 seeds)	105.00				
Tomato ringspot virus (ToRSV)	(3,000 seeds)	105.00				
Tomato black ring virus (TBRV)	(3,000 seeds)	105.00				
<i>Fusarium oxysporum</i>	(200 seeds)	79.50	87.00			
Other						
Verification test (if applicable)		32.50				
Each additional sample		15.00				
Rate per hour for extra research (if needed)		110.00				
Surcharge priority treatment		65.00				
Supplying pure isolates (bacteria and fungi)		114.00				

Seed Analysis

The Seed Analysis Laboratory carries out various tests to assess the quality of seed of flowers, trees, vegetables and herbs. Tests for germination, purity and moisture content or for tetrazolium and weeds are carried out under ISTA accreditation. In addition, the more practice-related Usable Plants Test can be performed. This can be applied to such crops as tomato, sweet pepper, cucumber-like crops, lettuce and cabbage.

If the test is in connection with ISTA certificates, the tests are started within a week of receiving the seed. For other seed tests, the samples are used within two weeks of receiving them.

Composition of the test rate

The total test rate is composed of two rates: a base rate and a test rate. The base rate is a handling fee which depends on the number of samples of the same crop submitted for the same test. As a result, this base rate is a variable rate according to the following graduated scale:

Number of specimens of the same crop for the same test	Basic fee per specimen
1	16.50
2	13.00
3 – 5	11.00
6 – 7	7.75
>7	5.75

Testing Fees

Germination tests and seed quality

a. Germination test (not including tree and palm seeds)		
- ISTA certificate*	(400 seeds)	56.70
- Naktuinbouw certificate	(400 seeds)	56.70
- Naktuinbouw certificate	(300 seeds)	49.40
- Naktuinbouw certificate	(200 seeds)	43.50
- Naktuinbouw certificate	(100 seeds)	38.60
b. Germination test (tree and palm seeds)		
- ISTA certificate*	(400 seeds)	182.25
- Naktuinbouw certificate	(400 seeds)	182.25
c. Germination on weight		
- ISTA certificate*	Betula 0.8 grs.	101.25
- Naktuinbouw certificate	Betula 0.8 grs.	101.25
d. Usable Plant test		
- Naktuinbouw certificate	(400 seeds)	100.00
- Naktuinbouw certificate	(300 seeds)	94.00
- Naktuinbouw certificate	(200 seeds)	88.00
- Naktuinbouw certificate	(100 seeds)	82.00
e. Tetrazolium test (not including tree and palm seeds)		
- ISTA certificaat*	(400 seeds)	211.50
- Naktuinbouw certificate	(400 seeds)	211.50
- Naktuinbouw certificate	(200 seeds)	175.50
- Naktuinbouw certificate	(100 seeds)	102.00

Seed Analysis

f. Tetrazolium test (tree and palm seeds)		
- ISTA certificate*	(400 seeds)	352.50
- Naktuinbouw certificate	(400 seeds)	352.50
- Naktuinbouw certificate	(200 seeds)	313.00
- Naktuinbouw certificate	(100 seeds)	186.00
g. Vigour tests		
Cold test		
- Naktuinbouw certificate	(400 seeds)	56.70
- Naktuinbouw certificate	(300 seeds)	49.50
- Naktuinbouw certificate	(200 seeds)	43.60
- Naktuinbouw certificate	(100 seeds)	38.60
Accelerated Aging Test		Price on request
<u>Physical determination</u>		
a. Thousand seed weight		
- ISTA certificate*	(800 seeds)	27.25
- Naktuinbouw certificate	(800 seeds)	27.25
- Naktuinbouw certificate	(400 seeds)	20.25
- Naktuinbouw certificate	(300 seeds)	17.75
- Naktuinbouw certificate	(200 seeds)	15.25
Those tests will be done on clean seeds		
b. Moisture content		
- ISTA certificaat*		24.25
- Naktuinbouw certificate		24.25
<u>Purity</u>		
a. Purity test		(2,500 seeds)
- Pulses		33.50
- Other		45.25
Analyses export Australia		183.00
b. Determining the presence of other seeds		(25,000 seeds) 157.50
c. Seed determination		Price on request
d. Determining 'single seeds rate' of beet seeds		
- ISTA certificate*		47.25
- Naktuinbouw certificate		47.25
e. Determining ploidy level		(20 seeds) 39.40
f. Fractioning test		(25,000 seeds) Price on request
g. Determining the presence of broken, discoloured etc. seeds		('piksel') 27.50

Seed Analysis

Health tests

a. Determining the presence of <i>Rhizomania</i>	(500 gram seeds)	27.50
b. Determining the presence of <i>Sclerotinia</i>	(25,000 seeds)	49.50
c. Determining the presence of beetles in seed lots		27.50
d. Determining the presence of <i>Urocystis cepulae</i>	(25,000 seeds)	49.50

Various

a. Determining the kind of starch for pea	(5 seeds)	27.50
b. Determining dry matter of onion/carrot	(10 bulbs/roots)	27.50

Extra charges

a. Disinfection of seeds before testing		9.00
b. Surcharge priority treatment		65.00
c. *Creation of an ISTA certificate		9.75
d. Alteration on an ISTA certificate		21.00
e. Alteration on a Naktuinbouw certificate		4.00

Other

Rate per hour for extra research (if needed)		110.00
Verification test (if applicable)		32.50
Each additional sample		15.00

* For ISTA certificates costs for sampling and certificates are billed separately

Variety Identification

Identity testing

Naktuinbouw has laboratory techniques to determine the varietal identity of your material. This may be very important and useful where material has been mixed, mistakenly replaced, if its origin needs tracing, if the matter is urgent or if morphological research is not possible.

Identity testing is carried out using DNA fingerprint techniques such as AFLP[®] and SSR. A typical project includes sampling, DNA isolation, analysing the fingerprints obtained, determining genetic affiliation, statistical analysis and reporting of the results.

Please contact us for more information and a quotation.

Variety Tracer

Naktuinbouw developed a concept to help settle allegations of infringement of plant breeders' rights and patents: Naktuinbouw Variety Tracer. It can provide evidence in cases of alleged infringement of plant breeders' rights, it allows to determine the identity of varieties and it can confirm suspicion of repeated cropping. Naktuinbouw Variety Tracer combines knowledge, independence and the possibility of morphological research with the possibilities of DNA fingerprint techniques. It is the combination of – and synergy between – these elements that guarantees extremely sound analyses and provides important evidence for possible court cases.

Please contact us for more information and a quotation.

Arboricultural Crops and Fruits

Biotests and making crops free from viruses

Arboricultural crops (including apples, pears, small fruit, strawberries and roses) are made free from viruses by means of various treatments, including heat treatment, at the Naktuinbouw Test Centre in Horst. The tops of treated plants are grafted onto virus-free rootstock or propagated from cuttings. Subsequent laboratory analyses, sap inoculations using test plants and grafting onto woody indicators is applied to confirm the virus-free status of the grafted tops.

Composition of the test rate

To maintain the high quality level of the Test Centre for the future rates for arboricultural crops and fruits have been adapted for 2012. In addition the costs for the production of virus free fruit traces have been adapted. Costs will be charged in the year the costs apply in stead of a flat rate.

Naktuinbouw charges a base rate for handling costs, in addition to the test rate as indicated below. The base rate for every assignment is € 48.00

Testing fees

Tests:

a. Virus test on two herbaceous host, both in duplicate	172.00
Each following test plant, per single plant	38.00
b. Virus test on <i>Prunus serrulata</i> 'Shirofugen'	180.00
c. Virus test on <i>Rubus occidentalis</i>	180.00
d.* Combination Appleviruses PCR test (ApMV – ACLSV - ASGV - ASPV)	
<50 samples	Price per sample 97.00
>50 samples	Price per sample 81.00
e. Virus test on on woody indicator plants (in the greenhouse per indicator, per specimen)	299.00
f. Virus test on on woody indicator plants (in the field per indicator, per specimen)	125.00
g. Virus test of strawberry by leaf grafting on <i>Fragaria vesca</i> UC5, UC12, EMC, Alpinum	
(per indicator, per specimen)	89.00
h.* Combination strawberryviruses PCR test (SCV – SVBV – SMOV – SMYEV)	
<50 samples	Price per sample 97.00
>50 samples	Price per sample 81.00
i. <i>Phytophthora fragariae</i> testing in strawberry (Duncan-test)	92.00
j. Detection of <i>Colletotrichum acutatum</i> via paraquat-test	60.00

Rendering free of viruses; woody plants

(Including testing program, heat treatment if necessary, excluding identity determination)

a. Strawberry (per variety)	3,225.00
b. Roses (per variety)	3,225.00
c. Small fruit plants (<i>Ribes</i> , <i>Rubus</i> a.o.) (per variety per year, maximum 2 years)	2,700.00
d. <i>Malus</i> , <i>Pyrus</i> (per variety per year, maximum 5 years)	
year 1 (pre-testing, heat treatment)	2,330.00
year 2 (testing treated material)	4,125.00
year 3 up to year 5 (maintaining treated material; rate per year)	556.00
<i>Prunus</i> (per variety per year, maximum 4 years)	
year 1 (pre-testing, heat treatment)	
year 2 (testing treated material)	1,995.00
year 3 and year 4 (maintaining treated material; rate per year)	3,395.00
	556.00
f. Other woody plants	on request
g. Extra heat treatment	786.00

Per order woody plants and strawberry 3 fully tested plants will be delivered.

* The basic fee for those test will be calculated according the scheme on page 11

Arboricultural Crops and Fruits

Maintenance prebasic and pre-nuclear stock

a. Woody plants prebasic		139.00
b. Woody plants pre-nuclear stock		61.00
c. Delivery costs prebasic, pre-nuclear stock	Per order, per variety	19.00

Special services

a. Preparing material for the request for Plant Breeders' Rights		on request
b. Health certificate import for 2008/61		on request
c. DNA fingerprinting strawberry crop		on request

General Terms and Conditions

Registered under no. 41150707 with the Chamber of Commerce and Industry for Rijnland in Leiden, the Netherlands, February 2012

General

Article 1.

1. These General Terms and Conditions of Naktuinbouw apply to all offers, order confirmations and agreements on the provision of services or the performance of projects, made or performed by Naktuinbouw or to which Naktuinbouw is a party.
2. Any varying provisions will apply only if so agreed by the parties in writing and in that case only to the agreement for which such provisions are drawn up; the present General Terms and Conditions will otherwise continue to apply.
3. Any general terms and conditions of the customer will apply to the offers of and to the agreements with Naktuinbouw referred to in paragraph 1 only if and in so far as they do not conflict with these General Terms and Conditions. In the event of doubt as to the existence of any such conflict, the General Terms and Conditions of Naktuinbouw will prevail.
4. An agreement governed by these General Terms and Conditions will not be concluded until Naktuinbouw has confirmed in writing that it accepts the offer or the assignment of the customer. The parties may also prove the conclusion of the agreements by other means, however.
5. Once a customer has concluded an agreement with Naktuinbouw to which these General Terms and Conditions apply, it will be deemed to have tacitly accepted the applicability of these General Terms and Conditions to any later offer made by Naktuinbouw or to any later agreements concluded with Naktuinbouw.
6. In these General Terms and Conditions, 'customer' means any party, either a natural person or a legal entity that instructs Naktuinbouw to provide services. 'Assignment' means any services provided, work performed, advice given, and projects or other activities performed by Naktuinbouw at the customer's instructions against the payment of a price (or hourly price) or other fee.

Liability

Article 2.

1. All assignments will be performed by Naktuinbouw to the best of its knowledge and abilities. Naktuinbouw does not accept any liability for indirect costs or consequential damage or loss. Naktuinbouw's liability for direct costs and direct damage or loss, howsoever related to or caused by a mistake or defect in the product or service delivered, will always be limited to the net invoice amount or the net amount of the statement of expenses for the assignment.
2. Naktuinbouw will furthermore not be liable for any damage resulting from breach by third parties engaged by Naktuinbouw. Naktuinbouw assumes and if necessary hereby stipulates that each assignment entitles it to accept any limitation of liability by third parties also on behalf of the customer.
3. These General Terms and Conditions may be invoked not only by Naktuinbouw but also by all of the persons who are engaged in the performance by Naktuinbouw of any assignment of the customer.
4. All assignments, including additional assignments and follow-up assignments, will exclusively be accepted and performed by or on behalf of Naktuinbouw. Articles 7:404 (obligation of the contractor to perform the assignment itself) and 7:407(2) (joint and several liability upon the acceptance of an assignment by Naktuinbouw together with a third party) of the Dutch Civil Code will not apply.
5. Naktuinbouw will also not be liable towards the customer for any loss of or damage to information, documentation and/or materials due to actions of third parties.
6. The stipulations in these General Terms and Conditions are made also for the benefit of the Directors of Naktuinbouw and of all of the persons who work or have worked for Naktuinbouw.
7. The customer indemnifies Naktuinbouw against all claims from third parties, including the reasonable costs of legal assistance, that are in any way related to or in any way result from the work performed for the customer, except in the case of willfulness or gross negligence on the part of Naktuinbouw.
8. The customer will provide Naktuinbouw in time with all of the information and data and will co-operate to the best of its ability in all actions that are necessary in Naktuinbouw's opinion to properly perform and complete the assignment. If the customer consists of several legal entities, each one of them will be jointly and severally liable towards Naktuinbouw for the fulfillment of the customer's obligations.

Confidentiality

Article 3.

Naktuinbouw will observe confidentiality with regard to all of the information provided by the customer.

Returning documentation

Article 4.

1. All documentation made available to Naktuinbouw by the customer may be collected at Naktuinbouw by the customer after notice of termination of the relationship between Naktuinbouw and the customer has been given, or may be sent to the customer by post, for the customer's account and risk. If the customer fails to collect that documentation within a period of six months after the aforesaid notice or fails to request that it be returned to it, Naktuinbouw will have the right to destroy that documentation.
2. Any plant and other materials to be tested that are made available to Naktuinbouw will, in principle, not be returned after completion of the test or the assignment, but will be destroyed, unless the customer stipulates upon giving the assignment or prior to the test that the material must be returned upon completion of the test or the assignment.

Tests, assessments and potting of materials

Article 5.

1. Naktuinbouw will determine within the context of the requests for testing/assessment of material the time and the manner in which the test(s) or assessment(s) will be performed.
2. The summary of the outcome of the testing or assessment activities provided by Naktuinbouw in the context of the tests/assessments referred to in the preceding paragraph will relate only to the samples tested and therefore not to the batch of material in question, unless Naktuinbouw indicates otherwise.
3. The customer fully indemnifies Naktuinbouw against any claims from the holders of plant breeders' rights, licensees and third parties, including claims for damages concerning the actions performed or to be performed by Naktuinbouw

General Terms and Conditions

at the instructions of and for the benefit of the customer, related to the testing/assessment of samples in the broadest sense of the words.

4. In the event of possible contamination with a quarantine organism, Naktuinbouw will be obligated under the Plantenziektenwet (Plant Diseases Act) on request to provide the duly authorised officials of the Plantenziektenkundige Dienst (Plant Protection Service) with all of the information that they reasonably require in order to perform their work.
5. Pathogens isolated by Naktuinbouw itself from plant material, seed or other material submitted for testing will become the property of Naktuinbouw.
6. DNA profiles obtained through molecular marker analysis from plant material, seed, micro-organisms or other material submitted for testing will be saved by Naktuinbouw in a database. These profiles can be used by Naktuinbouw for applications of public interest.

Training Courses

Article 6.

1. Contrary to that stated in article 1 paragraph 4 registration to attend training sessions or workshops organised by Naktuinbouw is submitted using a registration form. This registration form can be found on the Naktuinbouw website. It can be filled in digitally or downloaded and printed and returned on paper. A registration is only binding for Naktuinbouw after Naktuinbouw has sent a confirmation by e-mail.
2. In respect to in company training or workshops, the principal will receive a quotation in duplicate from Naktuinbouw. As soon as Naktuinbouw has received a signed quotation from the principal, a confirmation will be drawn up. A contract is only binding for Naktuinbouw after Naktuinbouw has sent a confirmation by e-mail.
3. In the event that registration to attend a training session or workshop is cancelled, Naktuinbouw will charge the following: 5% of the cost of the training if cancellation is received up to one month before the closing date of registration for the training / workshop and 50% of the cost of the training if cancellation is received within one month before the closing date of registration for the training / workshop. If participation in the training session/workshop is cancelled after the closing date of registration no refund will be given.
4. In respect to in company training and workshops the confirmation sent after the signed quotation has been received is considered to be binding. In the event of cancellation the costs must be paid in full.
5. In the event of insufficient numbers of participants for a training session or workshop, Naktuinbouw retains the right to cancel a training session or workshop and to not accept a registration. Naktuinbouw is not liable in this case to pay remuneration for damage or costs.
6. If a participant is unable to attend, another participant can take his/her place. In this case, Naktuinbouw will not charge any (extra) costs.
7. Naktuinbouw retains the right to exclude participants from following the training session or workshop if participants hinder the normal procedure of the training session/workshop by undesirable behaviour or otherwise. Exclusion in no way affects the obligation to pay for the costs of training.
8. The copyright and/or every other form of intellectual property rights relating to the instruction materials compiled by Naktuinbouw or any other work resulting from an assignment, training session or workshop is the property of Naktuinbouw, unless the parties have expressly agreed otherwise in writing.
9. Principal and participant may only use the instruction materials or any other work compiled and /or provided by Naktuinbouw for his/her own use. Without the express, prior written permission of Naktuinbouw it is forbidden:
 - a. to partly or wholly copy, disseminate, duplicate and/or present in public the instruction material by means of print, photocopy, microfilm, laser disc, magnetic disc or cassette, or in any electronic, mechanical or other means or to store it in a system that can be consulted by third parties
 - b. to release the instruction material or any other work to third parties, to sell it or in any other way to partly or wholly release the material.

Payment

Article 7.

1. Invoices and provisional invoices must be paid not later than within 30 days after the invoice date, without any right to discount or settlement, also in the event of bankruptcy, at the office of Naktuinbouw or by means of remittance to a bank or giro account specified by the latter.
2. If the customer has not paid within the period specified in paragraph 1 or a period later agreed on, it will be in default by operation of law and Naktuinbouw will have the right without any further warning or notice of default to charge the customer interest at a rate of 1% a month, part of a month being counted as a full month, as from the due date until the date of payment in full, without prejudice to Naktuinbouw's other rights. Naktuinbouw will in that case have the right to decide not to perform or further perform the assignment or to suspend such performance until the amount due has been paid in full, including interest and costs.
3. All costs arising from collection in or out of court of a claim against the other party will be for the customer's account.
4. The out-of-court costs of collection are fixed in advance at 15% of the invoice amount, subject to a minimum of € 225,- if third parties are engaged in the collection.
5. Any and all claims that Naktuinbouw has against the customer will fall due immediately if and in so far as the customer is in default of payment, and in the event of bankruptcy, the application for a suspension of payments and the cessation or liquidation of the customer's business.
6. Each invoice from Naktuinbouw will contain a brief description of the services provided or work performed. Naktuinbouw's records will serve as full evidence of the indebtedness of the invoiced amount. Unless otherwise agreed in writing, all invoice amounts and advances are exclusive of VAT.

Reservation

Article 8.

If the customer fails to comply with the agreement or the assignment agreement or to do so in time, Naktuinbouw may terminate in writing the performance of an assignment with due observance of a reasonable notice period but without observing the stipulated notice period.

Applicable law and choice of forum

Article 9.

1. All offers, order confirmations, assignments or other agreements or projects to which Naktuinbouw is a party or in

General Terms and Conditions

which it is otherwise involved, as well as the application or interpretation of these General Terms and Conditions, will in all cases be governed by Dutch law.

2. Any and all disputes related to or arising from offers, order confirmations, assignments or other agreements or projects to which Naktuinbouw is a party or in which it is otherwise involved will be settled in the first instance by the competent court of The Hague, the Netherlands.
3. In the event of a dispute regarding the interpretation of these General Terms and Conditions, the Dutch text shall be decisive.

Date 5 april 2012, modified terms and conditions in wich "Training courses" is added.