



TWV/34/11

ORIGINAL: English

DATE: August 17, 2000

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

TECHNICAL WORKING PARTY FOR VEGETABLES

Thirty-Fourth Session
Angers, France, September 11 to 15, 2000

**SURVEY ON REQUIRED AMOUNT OF PLANT MATERIAL TO BE SUBMITTED,
PLANT NUMBER IN THE FIELD AND SAMPLE SIZE
IN THE EXISTING UPOV TEST GUIDELINES**

Document prepared by experts from the Netherlands

Survey on required amount of plant material to be submitted, plant number in the field and sample size in the existing UPOV Test Guidelines.

Annexed a summary (I) is given of the relevant data derived from the existing UPOV guidelines within the TWV.

The following data are given:

Common name	The name of the specie involved
Guideline no.	The TG or TWV document number
Quantity of seed	Requested amount of seeds in grammes; (op) = open polinated, (h) = F1 hybrid
Calculated seeds	The number of seeds calculated, using the requested amount and the 1000 seed weight according to ISTA
Number of plants	In some guidelines not only the seed quantity is given, but for vegetatively propagated varieties also the number of plants to be transmitted.

Summary (II):

Common name	The name of the specie involved
Guideline no.	The TG or TWV document number

No of plants in test The minimal number of plants to be included in each test.

The following abbreviations are used:

- (o) = open ground
- (g) = glasshouse
- (drilled) = direct drilled
- (sing) = single plants
- (dwarf) = dwarf types
- (climb) = climbing types
- (s) = seed propagated
- (v) = vegetatively propagated

No of plants measured Minimum number of plants to be measured

No of plants in resist Minimum number of plants to be included in each resistance test.

Further the species are grouped in groups with comparable features. Per group the following conclusions may be drawn.

CABBAGE GROUP

No of plants to be measured; there seems no reason to measure a double number of plants for cauliflower.

No of plants in test; there seems no reason to test different numbers of plants; 60 plants for all species is advised.

Resistances: sometimes tests could be carried out: 20 plants per test.

With this data the amount of seeds can be calculated using the following formula:

$$X = 3(px5) + 3(rx3) + 10(px5) \text{ or}$$

Xnumber of seeds = 3test seasons (pnumber of plants per test x 5factor for the difference between sowing and usable plants) + 3tests (r number of plants per resistance test x 3tests) + 10factor for storage amount (pnumber of plants per test x 5factor for the difference between sowing and usable plants)

For the cabbage group this means: $x = 3(60x5) + 3(20x3) + 10(60x5) = 4080$ seeds = 20 g (is now 25 to 50)

FRUIT VEGETABLE GROUP

Predominantly protected crops, often hybrids and multiple resistances.

No of plants to be measured: 18 for all crops

No of plants per test: 20 for all crops

No of plants per resistance test: 20 for all crops

Formula: $X = 3(px3) + 3(rx5) + 10(px3) = 3(18x3) + 3(18x5) + 10(18x3) = 872$ seeds

This means

pepper	5 g (now 10)
Watermelon	100 g (now 400)
Melon	25 g (now 20)
Cucumber/gherkin	25 g (now 20)
Tomato	5 g (now 25/10)
Egg plant	5 g (now 15)
Okra	50 g (now 200)

LEAFY VEGETABLE GROUP

This is a mixed group with the following peculiarities; self pollinating or not, direct drilled or transplanted. For lettuce and spinach resistances play a role

No of plants to be measured: endive, lettuce, leaf chicory: 20 plants
Witloof, spinach, corn salad, celery, leaf beet: 60 plants

No of plants per test: endive, lettuce, leaf chicory: 80 plants
Witloof, spinach, corn salad, celery, leaf beet: 100 plants

No of plants per resistance test lettuce, spinach: 50 plants

Formula endive, leaf chicory: $X = 3(px10) + 10(px10) = 3(80x10) + 10(80x10) = 10.400$ seeds
Lettuce: $X = 3(px10) + 3(rx5) + 10(px10) = 3(80x10) + 3(50x5) + 10(80x10) = 11.150$ seeds
Witloof, corn salad, celery, leaf beet: $X = 3(px10) + 10(px10) = 3(100x10) + 10(100x10) = 13.000$ seeds
Spinach: $X = 3(px10) + 3(rx5) + 10(px10) = 3(100x10) + 3(50x5) + 10(100x10) = 13.750$

This means based on direct drilling:	Endive	20 g (now 20)
	Witloof	30 g (now 50)
	Leaf chicory	25 g (now 25)
	Lettuce	15 g (now 30)
	Spinach	150 g (now 250)
	Corn salad	50 g (now 150)
	Celery	5 g (now 10)
	Leaf beet	200 g (now 100)

PEAS

Formula $X = 3(px3) + 3(rx3) + 10(px3) = 3(100x3) + 3(20x3) + 10(100x3) = 4080$ seeds.
 This means 1500 g (now 1000 g).

BEANS

Formula $X = 3(px3) + 3(rx3) + 10(px3) = 3(150x3) + 3(20x3) + 10(150x3) = 6030$ seeds.
 This means

Runner bean	2500 g (now 2000)
French bean	1750 g (now 1000)
Broad bean	6000 g (now 2000)

ALLIUMS

60 plants to be measured seems rather high. Further 100 plants in trail for onion, 120 for garlic and 200 for leek and bunching onion could be simplified; all 100 or all 200.

Formula: $X = 3(px5) + 10(px5) = (p=100) = 1500+5000 = 6500$ seeds = 20g
 $(p=200) = 3000+10.000 = 13.000$ seeds = 40 g (now 60)

ROOT VEGETABLES

A mixed, cross pollinating species, direct drilled and transplanted. Resistances play no role.
 For Horse radish only the number of plants is given.
 Industrial Chicory is left out the discussion as it is grown as agricultural crop and most testing authorities also perform VCU on the sample.

Number of plants to be measured: 20 plants for Horse radish seems too low.
 Number of plants per trial: 300 plants for black salsify seems excessive.

Formula: $X = 3(px5) + 10(px5)$

Radish, Black salsify, Carrot, Beetroot (p=200) $X = 13.000$ seeds =

Radish	150 g	(now 100)
Black salsify	20 g	(now 200)
Carrot	25 g	(now 50)
Beetroot	500 g	(now 200)
Black radish	(p=90)	$X = 5.850$ seeds = 60 g (now 50 g)
Swede	(p=120)	$X = 7.800$ seeds = 25 g (now 500)
Celeriac	(p=60)	$X = 3.900$ seeds = 2 g (now 4 per test)

[Annexes follow]

[Annexes are saved as an Excel file.]