

Varietal Identification through GOT



GENETIC PURITY



GERMINATION



SEED HEALTH TEST



SEED STANDARDS



PHYSICAL PURITY



MOISTURE CONTENT

METHODS TO ASSESS GENETIC PURITY



1. Morphological / Conventional grow out test
2. Chemical test
3. Electrophoresis method

➤ Biochemical markers (Proteins and Isozymes)



➤ Molecular markers (DNA)



(Basra, 2002)

Activate Win
ttn

GROW-OUT TEST FOR CULTIVAR PURITY

Objective

To determine the genetic purity of a given seed lot of a released cultivar

Land Requirements

Field preparation, size of the plot, row length, spacing, irrigation, fertilization facilities

Seed source

Seeds should be from authenticated agency

Sampling

The minimum population required for taking the observations shall be 400 plants

Standard sample

samples of the cultivars sown in succession with standard samples at suitable intervals. (one standard sample for every ten sample to be tested)

Conduct of tests

Field plots should be grown in two replicates at two locations in suitable climates or off season (green/polyhouses)

SPACING SPECIFICATION FOR GROW OUT TEST

S l N o.	Crop	Row length (m)	Plant to plant distance (cm)	Space between rows (cm)	Space between plots (cm)	No of replication
1.	Wheat, barley, oats	6	2	25	50	2
2.	Pea, cowpea	6	10	45	90	2
3.	Chickpea, greengram, black gram	6	10	30	60	2
4.	Maize	10	25	60	90	2
5.	Hybrid cotton	5	10	45	45	2
6.	Paddy					
	a). very early to medium	6	15	20	45	2
	b). late and very late	6	25	30	60	2
7.	Pearl millet	6	10	60	90	2
8.	Sorghum	6	10	45	60	2

BOERNER DIVIDER FOR SAMPLING



SIZE OF SUBMITTED SAMPLES FOR GOT

1,000 g -	for maize, cotton, groundnut, soyabean and species of other genera with seeds of similar size;
500 g -	For sorghum, wheat, paddy and species of other genera with seeds of similar size;
250 g -	Beta and species of other genera with seeds of similar size;
100 g -	For bajra, jute and species of all other genera;
250 tubers / planting stakes/roots/corms -	Seed potato, sweet potato and other vegetatively propagating crops.

CALCULATION AND INTERPRETATION OF THE RESULTS

- ◊ Percentage of other cultivars, species found must be calculated upto first decimal place.
- ◊ While interpreting the results, tolerances should be applied by using the reject number for prescribed standards with reference to sample size as provided in table

REPORTING OF THE RESULTS

- ◊ The results of the grow-out test shall be reported as percentage of other species, cultivars or off-type plants.
- ◊ If plants of other cultivars are more than 15 per cent, the report shall state that the sample consists of mixture of different cultivars.

→ Criteria for GTO →

Maximum
Permissible
off types
(%)

Minimum
Genetic
purity
(%)

No. of plants
required for
observation

⇓

0.10

⇓

99.9

⇓

4000

0.20

99.8

2000

0.30

99.7

1350

0.50

99.5

800

1.00
and
Above

99.0
and
Below

400

REJECT NUMBER FOR PRESCRIBED STANDARDS AND SAMPLE SIZE

Standard	Reject number for sample size of	
	800	400
99.5(1 in 200)	8	*
99.0(1 in 100)	16	8
95.0(10 in 100)	48	24
90.0(10 in 100)	88	44
85.0(15 in 100)	128	64

*- indicates that the sample is too small for a valid test.

PROCEDURE OF GOT

Raising of desired population by following recommended cultural practices e.g., field preparation, size of the plot, etc.

Provide equal opportunity to each and every plant for full expression of genetically controlled characters

Sow the various samples of the same variety / cultivar in succession and standard sample at suitable intervals

Adjust of seed rate depending on germination % of individual samples and subsequent thinning is not recommended.

This test is preferably conducted in area to which the variety is recommended

A minimum of 200 plants from control samples should be raised along with the test crop.

The analyst employed for conducting „grow out test“ should possess the basic qualification as identified under Seed Rules, 1968.



TESTING FEES FOR GOT

Proposed Testing Fees for each Seed Sample (w.e.f. 01.07.2017)
 (Previous Order No. C/DC (Audit)/Testing Fee/2013-14 dated 05.08.2013)
 Order No. UAS (B)/NSP/STR/Rev. Testing Fee/67/2017-18 dated 25th July 2017

Sl. No.	Particulars	Revised Testing Fee (Rs.)				
		Basic Charges (PI)	Institutional Charges (50%)	Total	GST @ 18%	Grand Total
Testing of Seed Samples for Quality Parameters						
1	Full test (seed moisture, physical purity & germination)	200	100	300	54	354
2	Seed Moisture (%)	40	20	60	11	71
3	Seed Germination (%)	120	60	180	32	212
4	Physical Purity test (%)	60	30	90	16	106
5	Dormancy breaking	150	75	225	41	266
6	Conductivity Test	150	75	225	41	266
7	Accelerated aging Test	400	200	600	108	708
8	Tetrazolium Test (TZ) - Seed Viability (%)	300	150	450	81	531
9	Genetic purity of hybrids: (paddy, sunflower, maize) through DNA markers					
	a) For Public Sector Organizations	2000	1000	3000	540	3540
	b) For Private Sector Organizations	3600	1800	5400	972	6372
GOT test for genetic purity (Field Plot Test)						
10	Grow-out test charge (per lot/sample)					
	a) Hybrids & Parents	1500	750	2250	405	2655
	b) Varieties (OPV)	1000	500	1500	270	1770
11	Testing of Germination Paper/Media	300	150	450	81	531

GST @ 18% w.e.f. 1st July, 2017

Sd/-
 Special Officer (Seeds)