EVALUATION OF MUNGBEAN GENOTYPES FOR EXTRA EARLY MATURITY SUITABLE FOR RICE-WHEAT CROPPIN SYSTEM

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Introduction and Objectives

- Mungbean is generally grown during *kharif* season as a sole or inter crop with cotton, pearl millet, sorghum, pigeonpea, maize, etc
- Owing to the development of short duration varieties its cultivation is also gaining momentum in the spring and summer seasons
- Still there is considerable scope for bringing additional area under mungbean in summer season by extra short duration varieties which can be grown after harvesting of wheat
- Delayed harvesting of wheat due to prolonged winters leads to delayed sowing of summer mungbean subjecting it to risk of pre-monsoon showers
- Development of extra short duration varieties (50-55 days) needs emphasis to fit well in such crop rotations
- Such varieties will be able to cope up with the vagaries of weather at maturity/ harvesting
- Reduce the gap between demand and supply of grain legumes
- Help in avoid early transplanting of rice and may save water
- Generating extra employment and income for the farmers
- Improve the soil health by diversifying the cereal-based cropping systems

Objectives:

- To screen the advance genotypes and breeding material of mungbean during summer season for maturity
- To evaluate early maturing mungbean genotypes for yield and MYMV resistance

Programme of work & financial statement

- 1st year (2016-17): Screening and evaluation of mungbean breeding material and advance genotypes during summer.
- 2nd year (2017-18): Screening and evaluation of mungbean breeding material and advance genotypes during summer. Seed multiplication of promising genotypes.
- 3rd year (2018-19): Same experiment will be repeated with addition/deletion of few entries. Testing of superior genotypes at farmers' fields.

Total allocation (Rs.)		**18,64,660**
Expenditure (Rs.)	2016-17	6,96,411
	2017-18	11,06,267
	2018-19	61,923
Total Expenditure (Rs.)		**18,64,601**
Balance (Rs.)		**59**

Significant achievements

- Mungbean genotype MH 1314 was promoted to All India Coordinated Advanced Varietal Trial-1 (Extra Early-Summer-2018)

- Two more new genotypes *viz.*, MH 1315 and MH 1320 were contributed for testing in All India Coordinated Initial Varietal Trial (Extra Early-Summer) during Summer-2018

- Mungbean genotype MH 1323 was contributed for testing in All India Coordinated Initial Varietal Trial (Summer) during Summer-2018

Evaluation of mungbean germplasm lines during Summer

Sr. No.	Character	Description	No. of genotypes
1.	Days to maturity	55-59	54
		>60	182
2.	Seed yield/plot (1.2 sq m) (g)	175-200	27
		>200	4
3.	MYMV	Rating 1	27
		Rating 2-3	45
4.	Pod bearing	Top bearing	43
		Medium bearing	62
5.	Plant height	Tall	52
		Medium	89
		Dwarf	81
6.	Growth habit	Erect	47
		Semi spreading	83

Screening and evaluation of advanced genotypes

Summer 2017:

Sr. No.	Trial	Geno. + checks	Promising genotypes

1.	Final Yield Trial	21+4	MH 1303, MH 1320 and MH 1305
2.	Large Scale Trial-1	23+4	MH 1451, MH 1452, MH 1465, MH 1452, MH 1436 and MH 1432
3.	Large Scale Trial-2	24+3	MH 1468, MH 1489, MH 1484 and MH 1631
4.	Small Scale Trial-1	26+4	MH 1713, MH 1720, MH 1714 and MH 1703
5.	Small Scale Trial-2	26+4	MH 1751 and MH 1740
6.	Small Scale Trial-3	26+4	MH 1753 and MH 1754
7.	Progeny Row Trial	86+4	Genotype Nos. 2, 3, 4, 30, 38, 49, 63, 68, 74, 78, 79, 80, 83 and 84

Summer 2018:

Sr. No.	**Trial**	**Geno + checks**	**Promising genotypes**
1.	Final Yield Trial	21+3	MH 1436, MH 1451 and MH 1452
2.	Large Scale Trials	29+2	MH 1720, MH 1703 and MH 1740
3.	Small Scale Trial-1	33+3	MH 1828 and MH 1818
4.	Small Scale Trial-2	36+3	MH 1861, MH 1868 and MH 1857
5.	Small Scale Trial-3	36+3	MH 1884, MH 1876, MH 1898 & MH 18-100
6.	Small Scale Trial-4	27+3	MH 18-112 and MH 18-108
7.	Small Scale Trial-5	27+3	MH 18-159 and MH 18-142

Screening and evaluation of breeding material

Summer 2017

Sr. No.	**Generation**	**No. of crosses**	**Progenies grown**	**No. of single plants selected**	**No. of lines bulked**
1	F5	21	281	64	70
2	F6	13	30	1	9
3	F7	7	12	4	2
Total		**41**	**323**	**69**	**81**

Summer 2018:

Sr. No.	Generation	No. of crosses	Progenies grown	No. of single plants selected	No. of lines bulked
1	F5	11	60	17	8
2	F6	17	127	10	38
3	F7	6	17	3	5
Total		**34**	**204**	**30**	**51**

Evaluation of mungbean genotypes in different trials

Final Yield Trial during Summer 2017

Large Scale Trial during Summer 2017

Small Scale Trial during Summer 2017

Breeding Material and Germplasm during Summer 2017

Summer-2018

Final Yield Trial

Large Scale Trial

Germplasm evaluation

Mungbean breeding material

Summer 2018:

Small Scale Trial-1

Small Scale Trial-2

Small Scale Trial-3

Small Scale Trial-4

Small Scale Trial-5

Maturity period difference in advanced mungbean genotypes during Summer-2018