

PCGIN: Protocol for the replicated field microplot experiment on 3 sites over 3 years (2006/07/08)

Locations: JIC (Norwich), PGRO (Thornhaugh) and NIAB (Cambridge)

The aim is to grow a range of exotic germplasm on three sites and to record phenotype and performance data for comparison with the genotype data that already exists for these lines. The plots will be managed in such a way as to reveal the potential of the material and so will be kept as free as possible of pests and diseases which will form part of a separate (later) assessment.

1. Experimental design: Complete randomised block design. 60 plots, comprising 3 blocks of 20 lines with 1 replicate per block. Blocks will be run in series or parallel according to land availability.

2. Plant material: 20 lines comprising of 18 exotic germplasm lines (see Table 1 below) and two current cultivars as controls.

3. Plot size: 1.1m² with a minimum of 20cm between plots along the drill, with double wheelings between drill rows to allow easy access for observations.

4. Plot protection: A walk-in netted cage will be erected over all plots on all sites to minimise damage by birds (pheasants, pigeons and crows) and rabbits and hares.

The small plot size requires that the plants are staked, as the surrounding ground will not be planted. Observations on lodging can still be made, as evidenced by the trial plots at JIC on 2005.

5. Crop husbandry: Pre- and post-emergence herbicides will be used. There is no difference in the sensitivity of the exotic material to herbicides, compared with modern commercial material.

- Seed will be dressed with a proprietary fungicide to control damping off and downy mildew, as essential to ensure good establishment.
- 'Hallmark' will be used against weevils as required.
- Spraying against downy mildew and aphids will be undertaken.

6. Plot observations: Data will be recorded on a list of agreed traits. This will include germination, establishment, seedling vigour, flowering and lodging characters. Assessments will be made of cold tolerance, weevil damage and signs of any diseases.

7. Harvest recording: Detailed records will be made on 5 individual plants from the centre and the outside of each plot. Data collected will include components of yield for the main stem and branches, together with fresh and dry weights.

PCGIN: Agronomic Characters 8/5/ 2006

1	Emergence Date	a	start			
		b	50%			
2	Plant Population	a	count	i		
		b	vigour comment			
3	Seedling Obs.	a	early branching			
		b	cold tolerance/damage			% affected
4	Pest and diseases	a	Weevil damage			1 to 5
		b	Downy mildew			1 to 5
		C	Powdery mildew			1 to 5
5	Flower Dates	a	50%			
		b	full flower			
		c	out of flower			
6	Plot Obs.	a	height of canopy	i	at flowering	
		b	lodging	i	basal sag	1 to 5
				ii	leaning	1 to 5
				iii	creeping habit	1 to 5
		c	plant type	i	afila etc	
d	foliage colour		1 to 5			
7	Harvest records 10 plants x variety x rep 5 taken from outside rows 5 taken from inside rows record separately	a	date of maturity		when ready to harvest	
		b	plant height		length of main stem (cm)	
		c	No. nodes to first pod	i	includes 1st node	
		d	No. pods per node	i	triples	
				ii	doubles	
				iii	singles	
		e	No. flowering nodes			
		f	pods per plant			
		g	peas per pod			
		h	yield	i	weight of shelled peas	
ii	weight of haulm and shelled pods					
i	branching	i	record separately			
		ii	pods per plant			
		iii	peas per pod			
		iiii	weight of shelled peas			
		iiiii	weight of haulm and shelled pods			
8	Oven Drying			i	Total dried seed weight (g)	
				ii	Weight of remaining haulm (g)	
9	Overall Assessment	a	1 to 5			
		b	some comments			

Table 1. Final list of exotic germplasm lines as of 24/3/06.

Line No.	JI No	NAME
1	15	WBH 1458
2	45	P.TRANSCAUCASICUM
3	181	KEERAU PEA
4	188	WIRAIG
5	201	P.THEBAICUM
6	216	KANAWARI
7	228	P.SATIVUM-BOLIVIA
8	281	P.SATIVUM-ETHIOPIA
9	284	P.SATIVUM-AFGHANISTAN
10	399	CENNIA
11	813	YELLOW POLLEN-yp
12	1089	P.ELATIUS
13	1194	MISOG-1:CONVENTIONAL
14	1428	P.TIBETANICUM
15	2105	P.ELATIUS
16	2201	P.ELATIUS
17	2551	P. SATIVUM SIBERIANICUM
18	2605	P. SPECIOSUM-LIBYA
19		cv. Bilbo
20		cv. Cooper