

OAT (*Avena sativa* L., *Avena nuda* L.) DESCRIPTORS

III CHARACTERISATION AND EVALUATION DESCRIPTORS

Cereal genetic resources evaluation methodology:

Plot size: minimum 5m², at least 3 replications, random plot layout. Seed rate: winter wheat, oat - 500, spring wheat, spring barley, triticale, rye 400 seeds able to germinate per m². Non-treated seed is used. 3 year average data is transformed to 1-9 scale and used for final evaluation.

Characterization of testing location:

- a. Country of characterization
- b. Institute name and address
- c. Institute site (latitude, longitude, elevation)
- d. Sowing date
- e. Harvest date
- f. Percentage seed germination
- g. Percentage field establishment
- h. Plot size
- i. Number of replications
- j. Fertilizer (types, doses)
- k. Plant protection

ENVIRONMENT CHARACTERISTIC

- l. Soil type
- m. Relief
- n. Soil pH
- o. Soil organic matter content
- p. Soil texture
- q. Temperature range (year and/or the seasonal mean, maximum, minimum)
- r. Frost (date and lowest temperature of most recent frost)

Descriptor code	Number of trait in other descriptors	Descriptor Scale (score)	Reference values	Remarks
Characterisation				
III/1		Seasonality		
	UPOV25 CPVO22	1 Spring 3 Intermediate 5 Winter		
III/2		Growth habit		
	UPOV 1 CPVO 1	1 Strongly erect 3 Erect 5 Semi erect 7 Strongly declinated 9 Prostrate	<25 ⁰ 25-45 ⁰ 46-55 ⁰ 56-70 ⁰ >70 ⁰	25-29 (Decimal code of cereal plant growth stages by Zadoks), (picture 1. Appendix)
III/ 3		Time of panicle emergence		
	UPOV 4 CPVO 4	1 very early 3 Early 5 Medium (control) 7 Late 9 Very late		*,50-52 (compared with control) First spikelet visible on 50% of panicles
III/4		Time of ripening		
	IPGRI 6.2.1.	1 Very early 3 Early 5 Medium (control) 7 Late 9 Very late		88-90
III/5		Hairiness of uppermost node		

	UPOV6	1 9	Absent Present		60-65
III/6		Plant height, cm			
	BA 4 UPOV15 CPVO12 IPGRI 6.2.2.	1 3 5 7 9	Very short Short Medium Tall Very tall	<60 61-100 101-130 131-150 >150	*,80-92 , measured from the ground level to the top of spike excluding awns, for 5 plants per plot. Average data from all replications
III/7		Lodging resistance			
.	IPGRI 6.1.5. 6.1.6.	1 3 5 7 9	Very low Low Intermediate High Very high		60-79
III/ 8		Panicle - branch attitude			
	UPOV 9 CPVO 8 IPGRI 4.2.3.	1 3 5 7 9	Erect Semi erect Horizontal Drooping Very drooping	<46 ⁰ 46-85 ⁰ 86-95 ⁰ 96-135 ⁰ >135 ⁰	70-75, (picture 2, Appendix)
III/9		Kernel husk (%)			
.	BA 1 UPOV 17 CPVO 15 IPGRI 4.3.3.	1 5 9	Absent Intermediate Present	<25 25-95 >95	
III/10		Kernel – colour of lemma			
	BA 3 UPOV 20	1 3	White Yellow		*,92

	CPVO17 IPGRI 4.3.1	5 7 9	Grey Brown Black		
III/11		Awedness (%)			
	BA 4 UPOV18 CPVO15 IPGRI 4.3.4.	1 3 5 7	Awnless Weakly awned Medium awned Awned	<26 26-50 51-70 >70	*,92
III/12		Relative per cent of husk (%)			
	BA 11 IPGRI 6.3.4.	1 3 5 7 9	Very low Low Medium High Very high	<21 21-24 25-29 30-35 >35	

Evaluation					
III/13		1000 kernel weight (g)			
				For naked oats	
	BA 2 IPGRI 6.3.2.	1 3 5 7 9	Very low Low Medium High Very high	< 18 18-25 26-35 36-45 >45	<15 15-20 21-24 25-30 >30
					*, 92 2x500 kernels are counted (grains cleaned by ear separators or through 1.5 mm sieve). Representative sample from all replications
III/14		Volume weight (g l⁻¹)			
				For naked oats	
	BA8 IPGRI	1 3	Very low Low	<450 450-480	<550 550-580
					*, Representative sample from all replications

	6.3.3	5 7 9	Medium High Very high	481-500 501-520 >520	581-620 621-660 >660	
III/15		Crude protein content (%)				
				For naked oats		
	BA 9 IPGRI 6.3.5.	1 3 5 7 9	Very low Low Medium High Very high	<9 9.1-11.0 11.1-13.0 13.1-14.0 >14.1	<13.5 13.6-15.0 15.1-16.5 16.6-18.0 >18	*, Measured as percentage dry weight, indication the conversion factors used as N content x 5,7. Representative sample for all replications
III/16		Content of oil (%)				
				For naked oats		
	BA10 IPGRI 6.3.6.	1 3 5 7 9	Very low Low Medium High Very high	<4%; 4.1-5.0; 5.1-6.0; 6.1-7.0; >7.1%;	<7 7.1-8.0 8.1-9.0 9.1-10.0 >10	* measured as percentage dry weight, used Soxlet method.
III/17		Content of B-glukan (%)				
		1 3 5 7 9	Very low Low Medium High Very high	<3% 3.1-4.0 4.1-5.0 5.1-6.0 >6.0		
III/18		Grain yield, t ha⁻¹ or % to control				
		1 3 5	Very low Low Medium	<2.5 (<80%) 2.6-4.0 (80-94%) 4.1-5.5 (95-105%)		*, Recalculated to 14 % moisture

		7 9	High Very high	5.6-7.0 (106-125%) >7.0. (>125%)	
III/19		Utilization			
		1 3 5 7 9	for fodder for green mass and silage for food industry universal (grain + green mass) other		

Resistance to diseases					
III/20		Crown rust (<i>Puccinia coronifera</i> Cda.f.sp. <i>avenae</i> Eriks.)			
	IPGRI 8.1. 8.2.	1 3 5 7 9	Very high High Intermediate Low Very low		*,

III/21		Loose smut (<i>Ustilago avenae</i> (Pers.)Jens.)		
		1 Very high 3 High 5 Intermediate 7 Low 9 Very low		
III/22		Yelow dwart _ Barley yellow dwarf viruss (BYDV)		
		1 Very high 3 High 5 Intermediate 7 Low 9 Very low		
III/23		Powdery mildew (<i>Erysiphe graminis</i> DC.f.sp. <i>avenae</i> Em.Marchal)		
		1 Very high 3 High 5 Intermediate 7 Low 9 Very low		
III/24		Septoria leaf blotch (<i>Septoria avenae</i> Frank)		
		1 Very high 3 High 5 Intermediate 7 Low 9 Very low		
III/25		Notes		Any other information
III/26		Cytological characteristics and identified genes		
III/27		Molecular markers		
III/28		Pictures		

Explanations and references

¹IPIGRI (1994.)

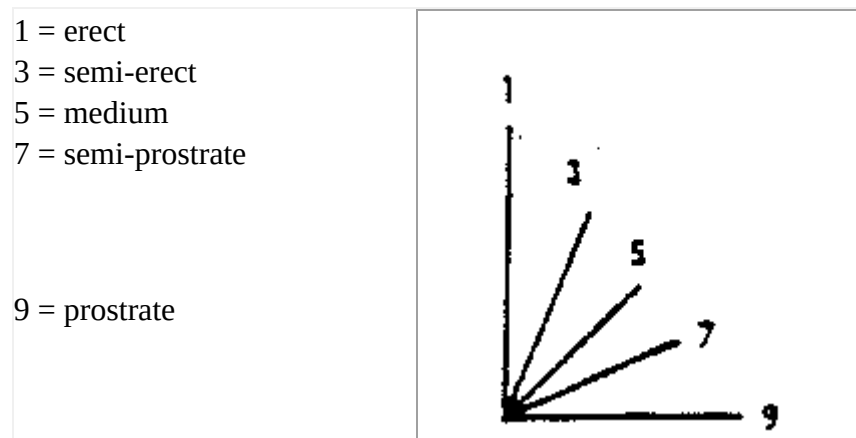
²BA –Common descriptors of Baltic States (1997)

³UPOV – DUS test guidelines 1994

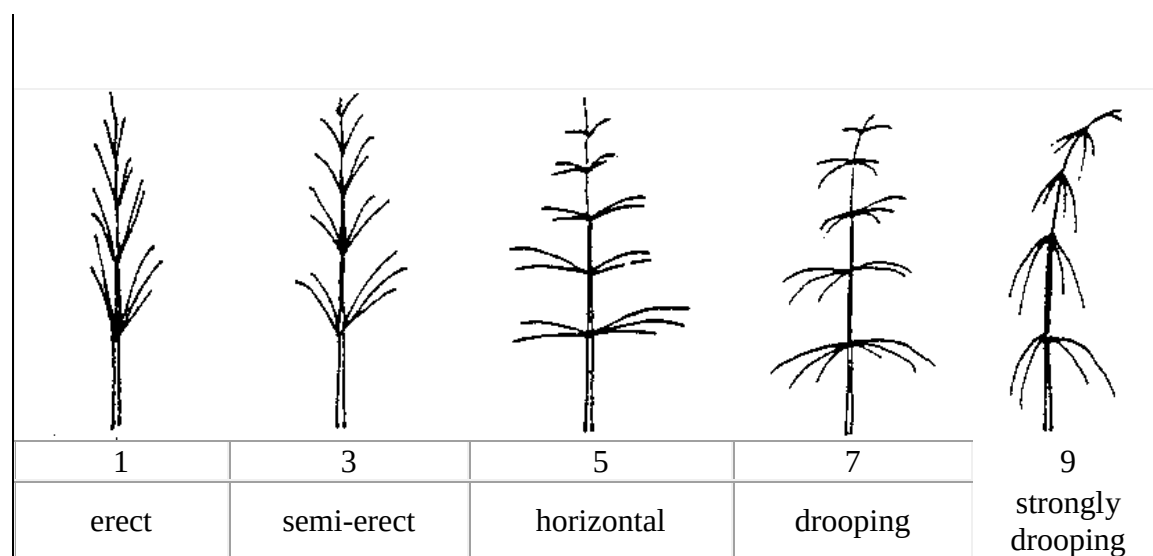
⁴CPVO - EU Report of plant varieties DUS test (06.11.2003)

*Trait estimation according to Methodology for arrangement of cereal trials for evaluation of genetic resources.

Appendix



Picture 1. III/2 Growth habit



Picture 2. III/8: Angle of panicle branches