1ST EUROPEAN SORGHUM CONGRESS

WORKSHOP

CROP MANAGEMENT TECHNIQUES FOR A BETTER PERFORMANCE

SORGHUM GRAIN CULTIVATION UNDER STEPPE CONDITIONS IN UKRAINE

ENHANCING THE AGRONOMIC AND ENVIRONMENTAL ASSETS OF SORGHUM CROPS

Dr Oleh OKSELENKO, Researcher, Dnipropetrovsk University UKRAINE

BUCHAREST
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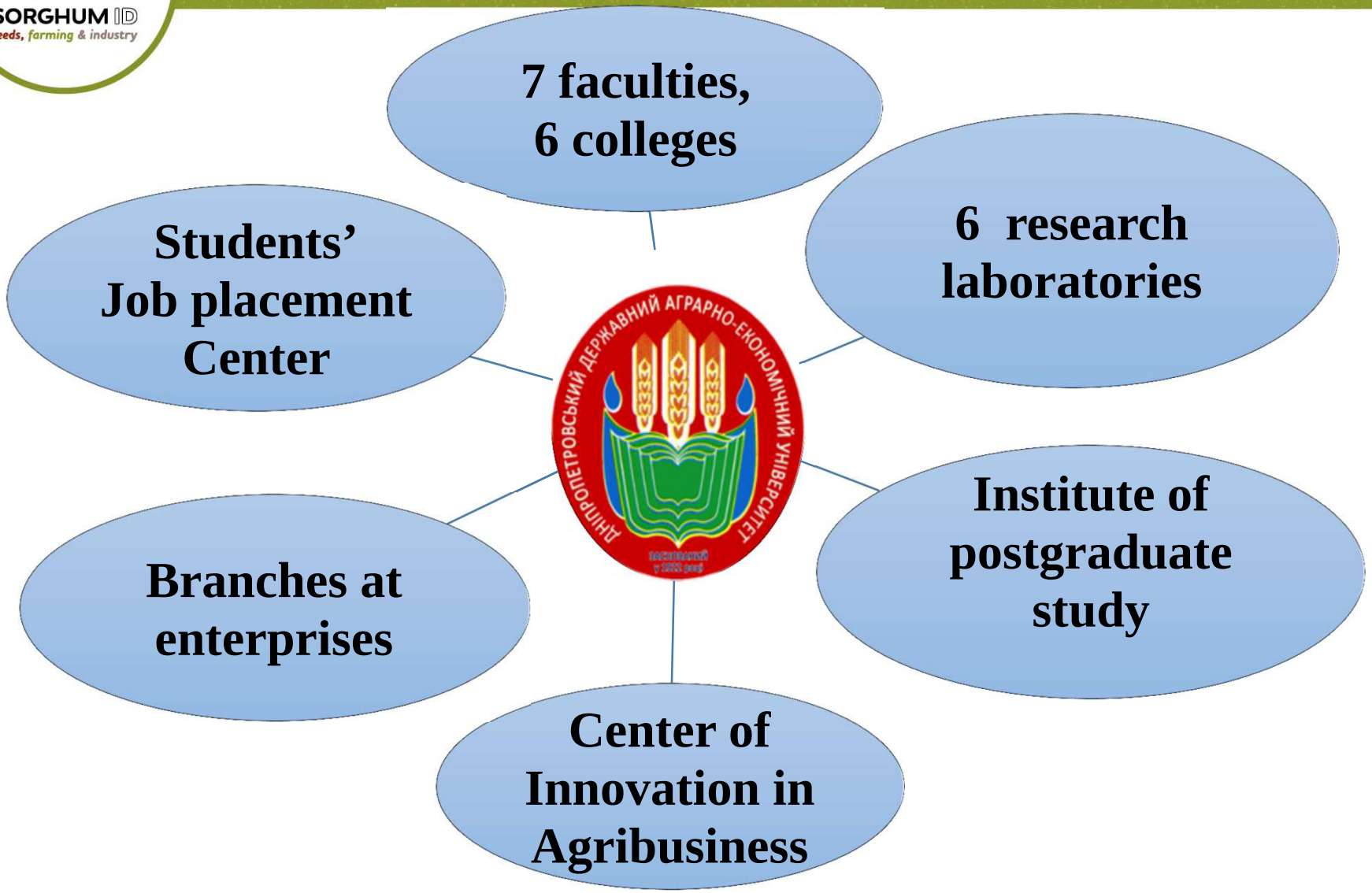
UNIVERSITY DESCRIPTION



MAP OF UKRAINE OF SORGHUM GRAIN CROP PRODUCTION AREAS

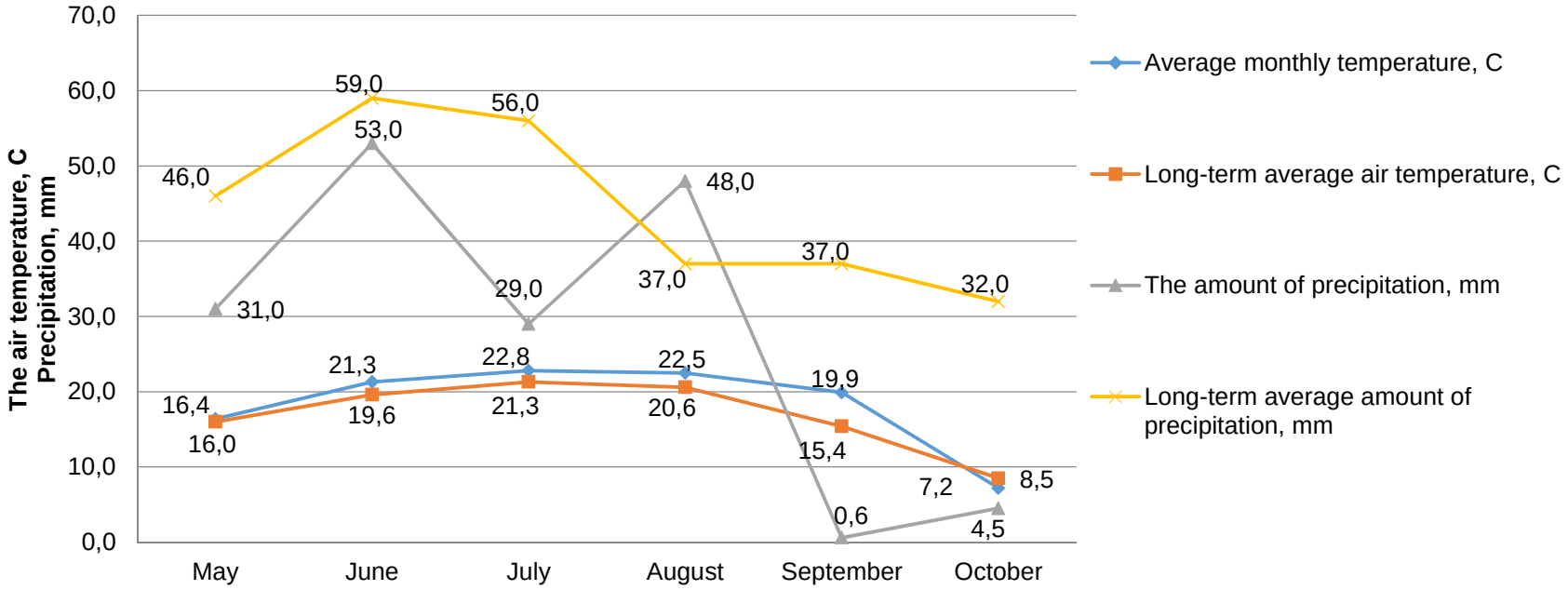
THE DENSITY OF SORGHUM PLANT STANDING IN GROWING ZONES IN UKRAINE

Growing zones	Standing density, thousand/ha
Southern Steppe	120-140
Northern Steppe	140-180
Forest Steppe	180-200

PURPOSE OF THE RESEARCH

- **Improve the technology of sorghum grain growing of Dash-e hybrid in the conditions of Ukrainian steppe**

Weather conditions in 2015
Average monthly temperature and amount of precipitations
(according to the DMC data for Hydrometeorology)



AGROCHEMICAL CHARACTERISTICS OF THE SOIL

Soil	Humus layer, cm	Content of humus, %	Contents of mobile forms, mg/100g soil			Soil density, g/cm^3
			N	P_2O_5	K_2O	
Ordinary black soils humus-poor medium-powerful silty medium loam	75	3,9	8,5	10,0	15,0	1,14

TECHNOLOGICAL MAP OF SORGHUM CULTIVATION FOR GRAIN

№	Operation	Timing of the works	Machine, tools, machinery	Agrotechnical requirements
The predecessor is winter wheat				
1	Peeling	July	Т-150К+ ЛДГ-15	10-12 cm
2	Autumn plowing	September	МТЗ-82 + ПЛН-3-35	22-25 cm
3	Early spring closing of moisture	Ripeness of the soil	МТЗ-82 + БЗСТ-1,0 + СГ-21	2-3 cm
4	Application of soil herbicide	Before cultivation	ЮМЗ-6Л+ОП-2000	0 cm
5	Pre-sowing soil treatment	Before sowing	ЮМЗ-6Л + КПС-4	4-5 cm
6	Sowing	At t +12°-+14°C soil on depth of seed placement	МТЗ-82 + СУПН-8; Т-25 +СН-16	4-5 cm
7	Applying of the insurance herbicide	Phase of 3-5 leaves	ЮМЗ-6 Л+ОП-2000	0 cm
8	Inter-row cultivations	Phase of 7 leaves	ЮМЗ-6 КЛ + КРН-5,6; ЮМЗ-6 КЛ +УСМК-5,4Б	6-8 cm
9	Spraying with the tank mixture of insecticide and fungicide	When lesion more than 10-15 % of the plants	ЮМЗ-6 Л+ОП-2000	0 cm
10	Harvest	Full ripeness of grain	SAMPO-500	20 % moisture in the grain and less 20 %

PANICLE HEIGHT AT 3 INTER-ROWS

NUMBER OF GRAINS AT 3 INTER-ROWS

NUMBER OF GRAINS FROM THE PANICLE

(2015, Pcs)

Inter-row spacing, cm	Dose of fertilizers		
	Without fertilizers	$N_{30}P_{30}K_{30}$	$N_{60}P_{60}K_{60}$
30	1077	1242	1466
45	1174	1280	1541
70	1217	1325	1623

GRAIN WEIGHT AT 3 INTER-ROWS

GRAIN WEIGHT FROM PANICLE

(2015, Grams)

Inter-row spacing, cm	Dose of fertilizers		
	Without fertilizers	$N_{30}P_{30}K_{30}$	$N_{60}P_{60}K_{60}$
30	30,9	36,9	45,0
45	33,1	37,5	47,0
70	33,7	38,3	49,0

THOUSAND GRAINS WEIGHT AT 3 INTER-ROWS

THOUSAND GRAINS WEIGHT

(2015, Grams)

Inter-row spacing, cm	Dose of fertilizers		
	Without fertilizers	$N_{30}P_{30}K_{30}$	$N_{60}P_{60}K_{60}$
30	28,7	29,7	30,7
45	28,2	29,3	30,5
70	27,7	28,9	30,2

GRAIN YIELD

(2015, Tons/ha)

Inter-row spacing, cm	Dose of fertilizers		
	Without fertilizers	$N_{30}P_{30}K_{30}$	$N_{60}P_{60}K_{60}$
30	4,94	5,90	7,20
45	5,30	6,00	7,52
70	5,39	6,13	7,84

CONCLUSION

- **As climate changes require a review of the rotation in favor of drought-resistant crops, sorghum is one of the most promising crops for grain cultivation in Ukraine.**

- **In our experiments the highest yield of grain sorghum is obtained on the row spacing width of 70 cm with the dose of mineral fertilizers $N_{60}P_{60}K_{60}$**

THANK YOU