



## Sustainable Development Projects of the Center for Arid Farming and Conservation Agriculture Research (C.AFCAR)

### Project Name: producing drought-tolerant plant genotypes

**Project Concept:** A strategic project for Center for Arid Farming and Conservation Agriculture Research for the production and purification of drought-tolerant plant genotypes, as the Genetic Resources Department at the Center is concerned with the circulation of local varieties with high drought tolerance and lower water requirements, which includes hundreds of local and endemic varieties of crops (bread wheat - durum wheat - barley - Triticale - chickpea - lentil - peas - field peas - rye - pastoral rye) in addition to hundreds of genotypes received by the Center by local and international organizations and research centers Which are under research experiments and among the priorities of the center to elect the most drought-tolerant and the least water requirements to complete their life cycle. Among the international centers with which the Arid Agriculture and Conservation Research Center cooperates are:

- 1 -International Center for Agricultural Research in the Dry Areas (ICARDA) in Morocco.
- 2 -International Center for the Improvement of Maize and Spelt CIMMYT in Mexico.
- 3 .International Crops Research Centre for Sub-Arid Tropics ICRTSAT in India.
- 4 -Arab Center for the Studies of Arid Zones (ACSAD) in Jordan.
- 5 -International Center for Tropical Agriculture (CIAT) in Colombia.
- 6 -Nordic Genetic Resources Centre (NORDGEN) in Sweden.



Where experiments were carried out to propagate new genotypes introduced to Iraq from the International Center for Agricultural Research in the Dry Areas (ICARDA) for the crops of bread wheat, coarse wheat, barley, field peas, grass pea, lentil, chickpea and beans, which numbered 1060 genotype in the greenhouses of Center for Arid Farming and Conservation Agriculture Research at University of Mosul and under rain-fed conditions, and due to the severe climatic variability of lack of rain and a sudden drop in subzero temperatures accompanied by a rise in temperatures for this year 2025. This season was one of the most challenging for testing drought tolerance and climate variability traits. Despite these harsh



conditions, the AFCAR Center achieved exceptional results, with a number of genotypes reaching full maturity. Among these are seven genotypes for bread wheat, four for the Grass pea crop, and three for chickpeas. This success underscores the resilience and adaptability of these genetic lines under extreme environmental pressures, marking a significant milestone in advancing drought-resistant agricultural solutions.

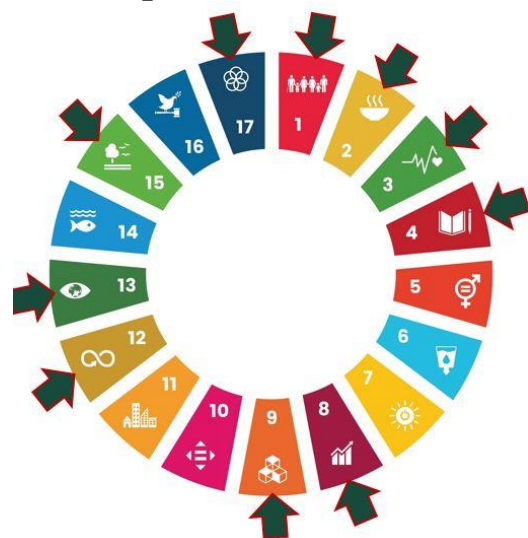
In addition, a hybridization experiment was carried out between 5 genotypes from bread wheat which are (GR1 – GR2 – GR3 – GR4 – GR5). These genotypes characterized by their relative drought tolerance but varying in their productive characteristics and resistance to environmental conditions in the hope of reaching a hybrid that surpasses the parents in drought tolerance and high productivity.



## Center:Center for Arid Farming and Conservation Agriculture Research's (C.AFCAR)

### The project achieves 10 of the Sustainable Development Goals:

- Goal 1: No Poverty
- Goal 2: Zero hunger
- Goal 3: Good health and well-being
- Goal 4: Quality education
- Goal 8: Decent work and economic growth
- Goal 9: Industry, Innovation, Technology and Infra structure
- Goal 12: Responsible consumption and production
- Goal 13: Climate action
- Goal 15: Life on land
- Goal 17: Peace, justice and strong institutions



**Funding information:** In cooperation between the University of Mosul and the World Food Program.





## Nordic Conference on Genetic Resources - Possibilities and Resilience 2024

### THE FLOWERING WINDOW AND TEST WHEIGHT OF BREAD WHEAT AND DURUM WHEAT VARIETIES IN IRAQ.



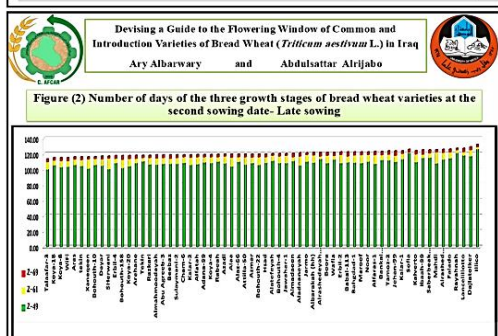
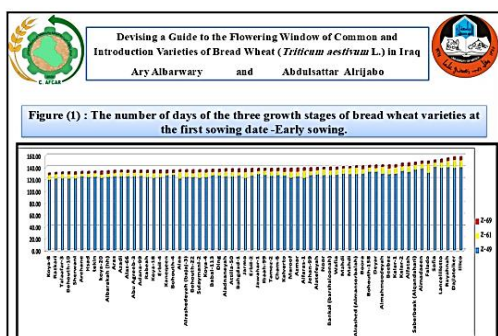
By

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& Ary Sulayman AL- Barwary

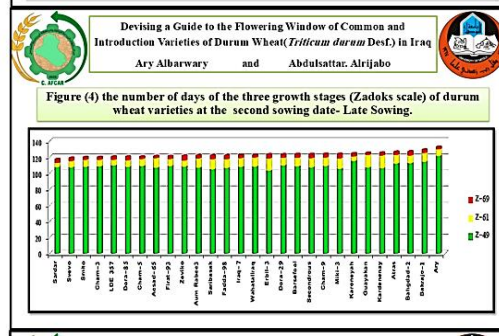
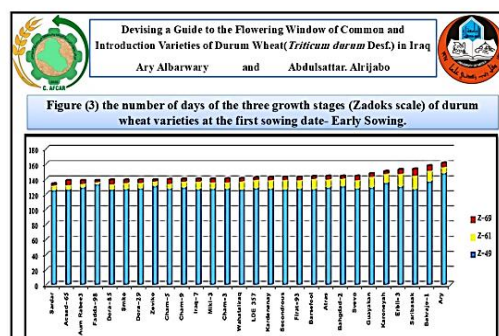
This poster is prepared by Prof Dr. Abdulsattar Asmair Alrijabo (the supervisor) of a PhD thesis by Ary S. Albarwary. The Poster includes many studies, with titles shown in the top of each pages of the poster. The study was implemented in a Moderate Rainfall Area MRA in North of Iraq, and the study included two sowing dates of 64 varieties of bread wheat and 28 varieties of durum wheat grown in Iraq. Sowing dates was early sowing before the fall of first heavy effective heavy rain (more than 30 mm.) and late sowing after the fall of the first heavy effective rain. The flowering window was studied by determining three basic growth stages GS according to the Zadoks scale, which were the end of booting stage (Z-49), the beginning of anthesis GS (Z-61), and anthesis complete GS (Z-69). The most important results: A guide was developed for the ideal planting dates for bread wheat and durum wheat varieties in Iraq by knowing their productivity. As a result of these varieties being affected by the planting date, they classified into three groups. The first group of varieties can be planted before the first effective rain, the second after the first effective rain, and the third neutral. At the same time, the test weight of all these items was tested to classify them into several categories.



Studying The Differences Between Common and Introduction Bread Wheat (*Triticum aestivum* L.) Varieties in Iraq On Traits of Growth, Yield, And Its Components - Mosul Location  
Ary Albarwary and Abdulsattar Alrijabo

Table (1) : Ary and Alrijabo Prepared guide for test weight kg.h<sup>-1</sup> of durum wheat varieties in Iraq.

74.99 kg.h <sup>-1</sup> or less	75-75.99 kg.h <sup>-1</sup>	76-76.99 kg.h <sup>-1</sup>	77-77.99 kg.h <sup>-1</sup>	78-78.99 kg.h <sup>-1</sup>	79-79.99 kg.h <sup>-1</sup>	80 kg.h <sup>-1</sup> and above
Rahid	Rebedi	Mahdi	Jahm 99	Jemco	Erbil 4	Shawana
Fahdo	Alsa	Kaharto	Wafi	Doyar	Erbil 2	Koya 8
Bobouth 158	Kahr 1	Sofa	Baghdad 1	Bahil 113	Amila 50	Alkhudayyeh
chm	Almadem	Temnoz 2	Koya 4	Razani	Alstefayh	Koya 20
Iliso	Noor	Laucellotto	Hsad	Anz	Boora	Bakal
Jawahir 1	Alfari 1	Amur	Sulayman 2	Alsa gmb-3	Dag	Subersek
Bobouth 10	Alfah	Bobouth 22	Alberka	Koya 18	Arythae	Tal / Aafir 3
Rhauna				Bobouth 4	Wafat	Azadi
Degh al-Khair				Bohaz	Marof	
Alkhdoyh				Ipsa-99	Alkhudayyeh	
				Al Ez 66	Tekin	
				Adana 99		
				Kahr 2		
				Khamem		



Studying The Differences Between Common and Introduction Durum Wheat (*Triticum durum* Desf.) Varieties in Iraq In Traits of Growth, Yield, And Its Components - Ninevah Province  
Ary Albarwary and Abdulsattar Alrijabo

Table (2) : Ary and Alrijabo guide for test weight of bread wheat varieties in Iraq

78.99 - 77.5 kg.h <sup>-1</sup>	79.99 - 79 kg.h <sup>-1</sup>	80.99 - 80 kg.h <sup>-1</sup>	81.99 - 81 kg.h <sup>-1</sup>	More than 82 kg.h <sup>-1</sup>
Karoneyah	Acsad 65	Cham 9	Dor 85	LDE 357
Ari	Iraqi 7	Zvico	Sardar	Cham 5
Miki 3	Dor 29	Svevo	Wahat alIraq	
Erbil 3	Baghdad 2	Cham 3	Um Rabie	
Fada 98		Guayakan	Atras	
Parasifal		Secondrous	Saribasak	
		Bakra jo1	Kardenenay	
			Smito	
			Firat 93	