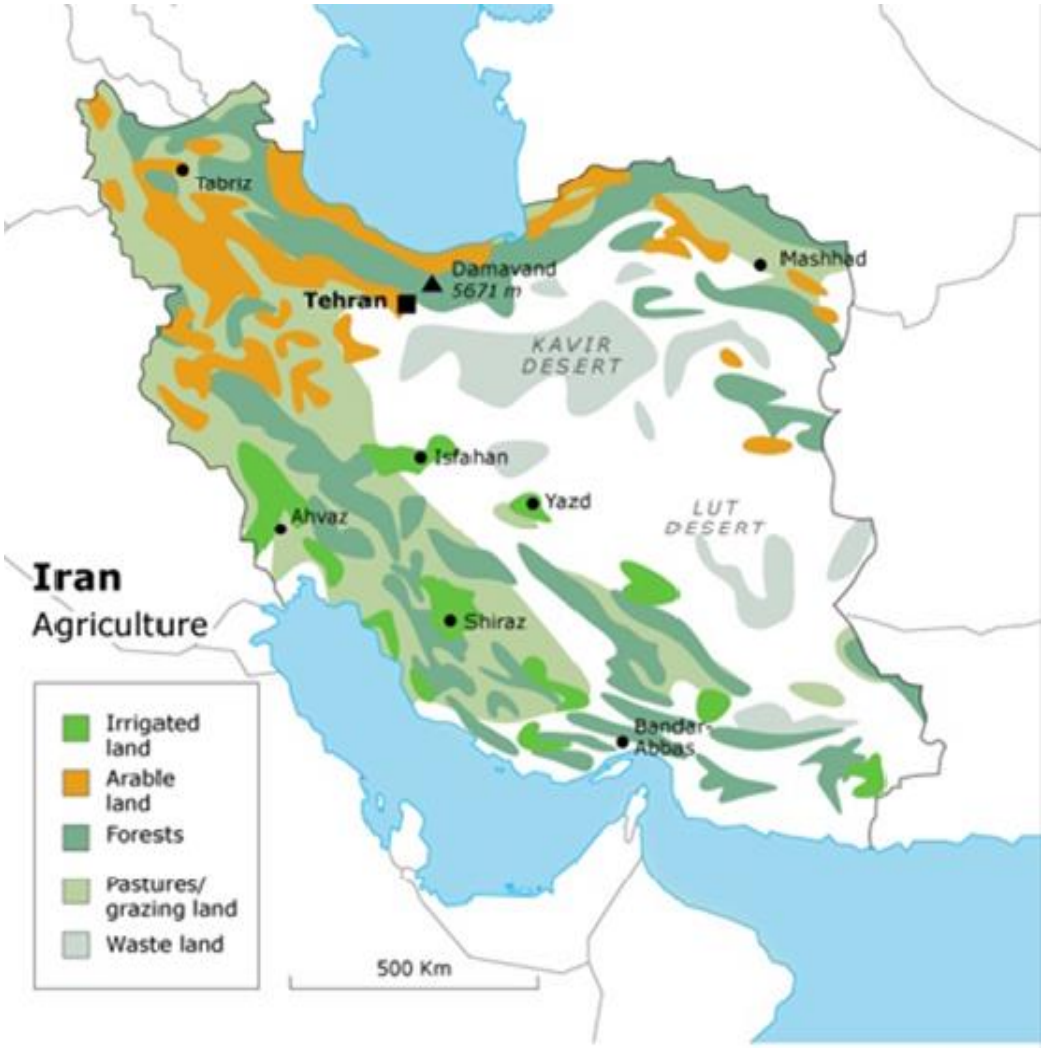
Update on Wheat Improvement in Iran

M. R. Jalal Kamali

22 March 2017

Obregon, Mexico

CIMMYT



- **Wheat is the major crop**
- **Total land area is 164.8 Mha**
- **About 18.5 Mha are used for agriculture:**

  6 Mha (Irrigated field crops): 32.4%

  6 Mha (Rainfed field crops): 32.4%

  4.5 Mha (Fallow): 24.4%

  2 Mha (Horticultural crops): 10.8%

- **Wheat Harvested Areas: 6.0 Mha**

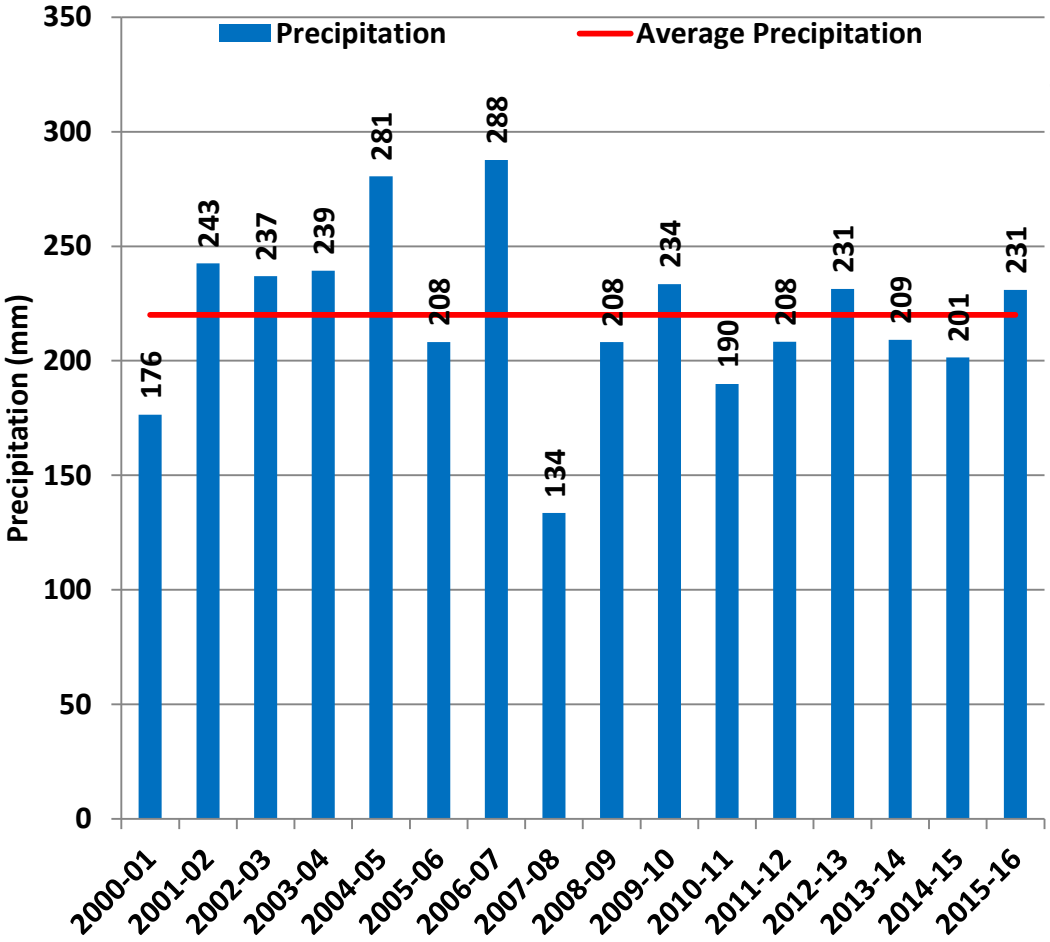
  Irrigated wheat: 2.2 Mha

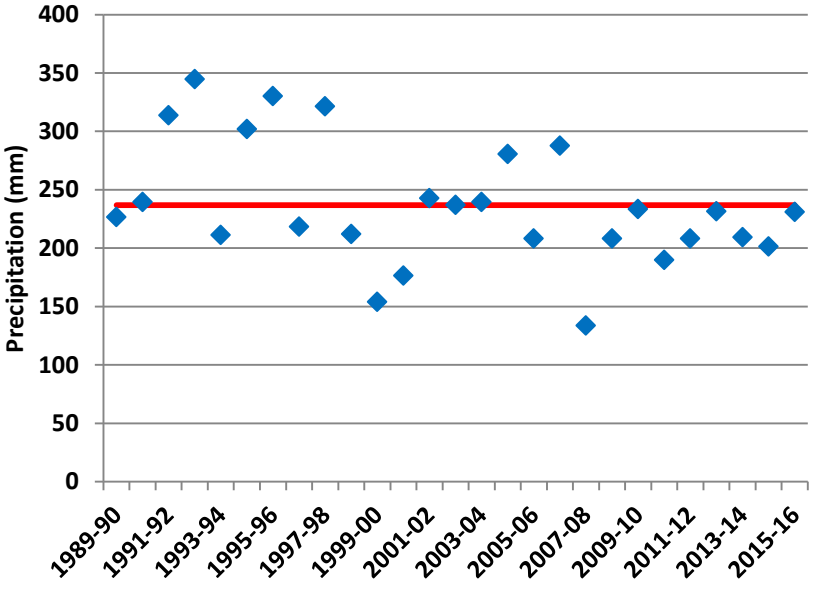
  Rainfed wheat: 3.8 Mha

Map of Iran Land Use. (Source: http://fanack.com/uploads/pics/Iran_map 600px_agri)

CIMMYT

50% < Average Precipitation of the period of 2000-16

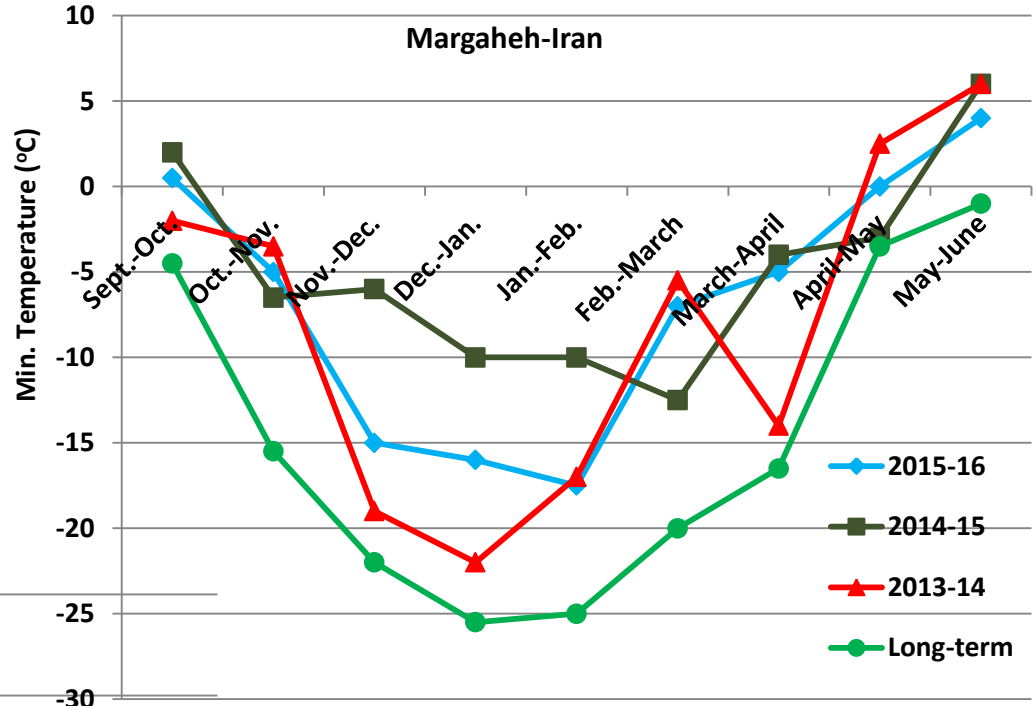


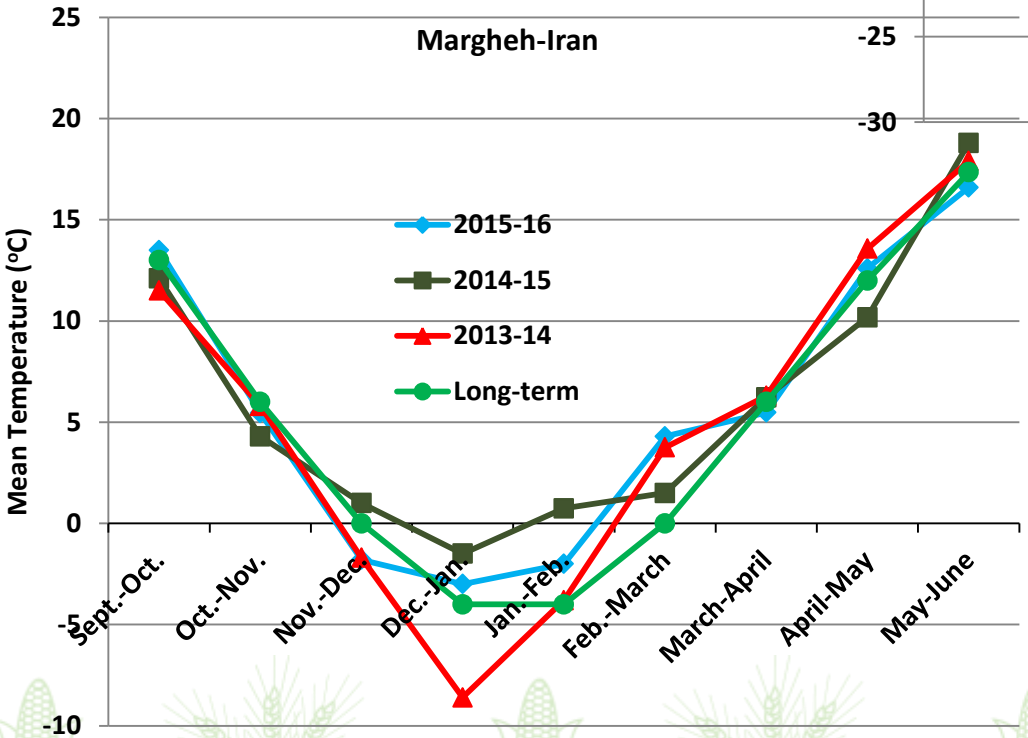


45% < Average Precipitation of the period of 1989-2016

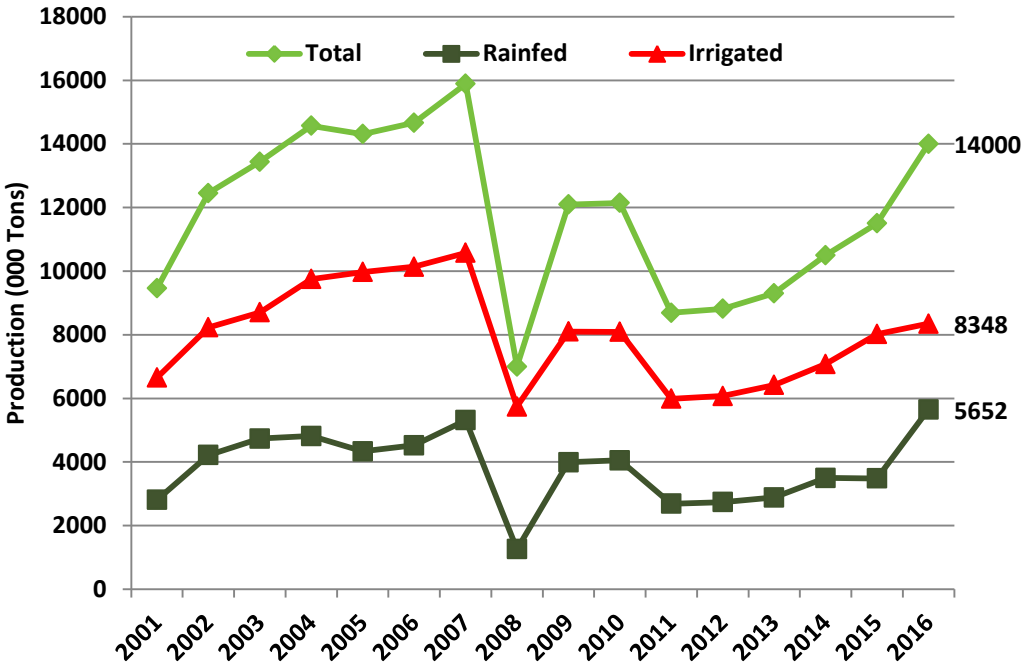
- 2016 Winter was milder 0.6-3.5 °C, in some areas even warmer 4.5 °C
- 2016 Spring was warmer 0.6-1.5 °C , in some areas 2.5 °C
- 2016 March-April was cooler in spring wheat growing areas which coincided with grain filling

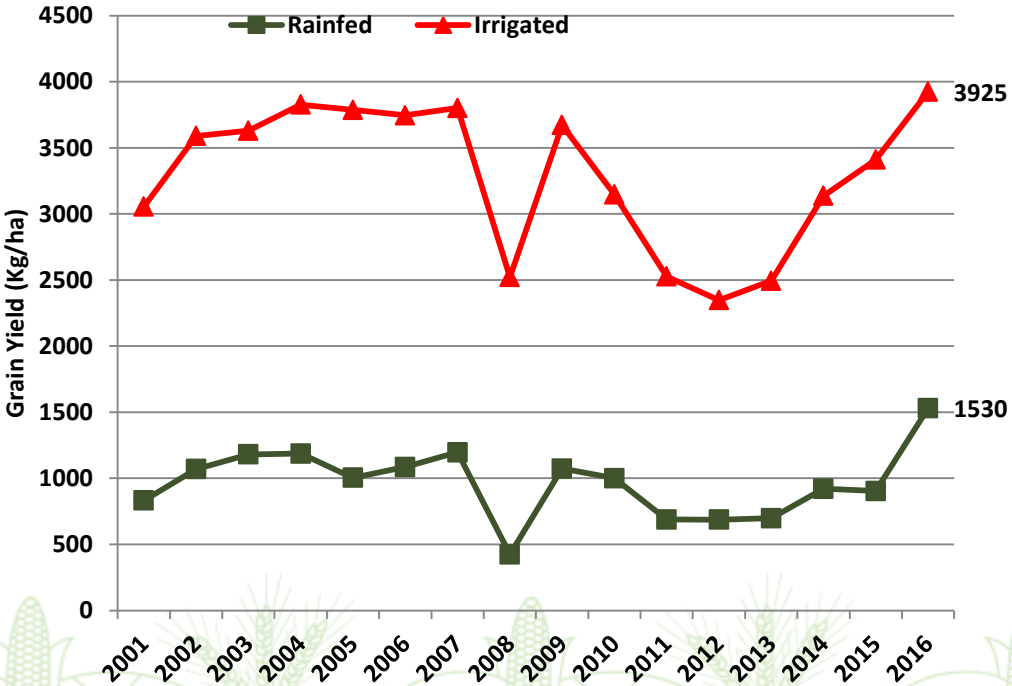
CIMMYT


Margaheh-Iran
Min. Temperature (°C)
10
5
0
-5
-10
-15
-20
-25
-30
Sept.-Oct.
Oct.-Nov.
Nov.-Dec.
Dec.-Jan.
Jan.-Feb.
Feb.-March
March-April
April-May
May-June
2015-16
2014-15
2013-14
Long-term


Margheh-Iran
Mean Temperature (°C)
25
20
15
10
5
0
-5
-10
Sept.-Oct.
Oct.-Nov.
Nov.-Dec.
Dec.-Jan.
Jan.-Feb.
Feb.-March
March-April
April-May
May-June
2015-16
2014-15
2013-14
Long-term

CIMMYT


Total
Rainfed
Irrigated
Production (000 Tons)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
14000
8348
5652
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016


Rainfed
Irrigated
Grain Yield (Kg/ha)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
3925
1530
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

CIMMYT

International Bread and Durum Wheat Nurseries grown by SPII in 2015-16 cropping cycle

Nursery	Location
36th ESWYT	Karaj, Gorgan and Dezful
23rd HRWYT	Sari, Moghan and Gorgan
26th HRWSN	Sari, Moghan and Gorgan
23rd SAWYT	Kermanshah and Zabol
33rd SAWSN	Kermanshah and Zabol
14th HTWYT	Dezful and Zabol
48th IBWSN	Karaj, Gorgan, Kermanshah, Zarghan, Moghan, Sari, Darab and Dezful
47th IDSN	Karaj, Darab and Dezful
47th IDYN	Karaj, Darab and Dezful
23rd FAWWON-IRR	Karaj, Ardabil, Mashhad and Jolgeh Rokh
19th IWWYT-IRR	Karaj, Ardabil, Mashhad and Jolgeh Rokh
1st SATYT	Zabol and Darab
3rd WYCYT	Zarghan, Darab, Gonbad and Dezful
5th SATYN	Karaj, Zarghan, Zabol and Gonbad
10th STEMRRSN	Karaj, Moghan, Gorgan and Dezful
IRN-SH94-1	Zarghan, Dezful and Darab
IRN-SH94-2	Zarghan, Dezful and Darab
16th ELITE-IRR	Karaj
17th FHBSN	Moghan and Gorgan
25th ISEPTON	Dezfuland Moghan
17th KBSN	Darab
POP-WC-Bone (FHB+SR) sources	Karaj, Moghan and Gorgan
Total	68 Nursery × Location including 2025 entries

CIMMYT

International Bread & Durum Wheat Nurseries grown by DARI in 2015-16 cropping cycle

Nursery	Location
36th ESWYT	Gachsaran
23rd HRWYT	Ghachsaran, Khorramabad and Moghan
26th HRWSN	Ghachsaran, Gonbad and Moghan
23rd SAWYT	Ghachsaran, Khorramabad, Gonbad and Moghan
33rd SAWSN	Ghachsaran, Khorramabad, Gonbad and Moghan
14th HTWYT	Ghachsaran, Khorramabad and Gonbad
48th IBWSN	Ghachsaran, Khorramabad, Gonbad and Moghan
47th IDSN	Ghachsaran, Sararoud and Moghan
47th IDYN	Ghachsaran, Sararoud and Moghan
23rd FAWWON-SA	Maragheh, Ardabil and Qamloo
18th IWWYT-SA	Maragheh, Ardabil and Qamloo
1st SATYT	Ghachsaran, Khorramabad, Sararoud and Gonbad
3rd WYCYT	Ghachsaran, Gonbad and Moghan
10th STEMRRSN	Gonbad and Moghan
17th FHBSN	Ghachsaran, Gonbad and Moghan
16th Elite-SA	Maragheh
16th WWAY-SA	Maragheh
Total	48 Nursery × Location including 1695 entries

CIMMYT

Number of selected lines from CIMMYT/IWWIP International Wheat Nurseries in 2016

		SPII		DARI	
Nursery	Total Lines	Selected Lines	% Selected	Selected Lines	% Selected
36th ESWYT	50	26	52	13	26
23rd HRWYT	50	16	32	4	8
26th HRWSN	117	34	29	14	12
23rd SAWYT	50	15	30	7	14
33rd SAWSN	285	56	20	25	9
14t HTWYT	50	10	20	1	2
48th IBWSN	300	99	33	44	15
47th IDSN	145	79	54	53	37
47th IDYN	50	29	58	21	42
23rd FAWWON-IR	160	26	16		
19th IWWYT-IR	40	9	23		
23rd FAWWON-SA	100			20	20
18th IWWYT-SA	36			5	14
1st SATYT	45	12	27	6	13
3rd WYCYT	42	9	21	3	7
5th SATYN	35	14	40		
10th STEMRRSN	208	94	45	38	18
IRN-SH94-1	25	15	60		
IRN-SH94-2	29	8	28		
16th ELITE-IRR	12	3	25		
17th FHBSN	44			14	32
16th Elite-SA	20			2	10
16th WWAY-SA	75			5	7
POP-WC-Bone (FHB+SR) sources	30	5	17		
Total	1998	559	28	275	14

CIMMYT

Bread Wheat/Durum Wheat /Triticale Cultivars Released in Iran in 2016

Name	Crop	Pedigree	Institute	Origin	Recommended for:	Important Traits
Barat	Bread wheat	SLVS*2/PASTOR CMSS98Y03489F-040M-0100M-040Y-020M-040SY-28M-0Y-0SY	SPII, Iran	CIMMYT	ME1 = Southern Warm and Dry Zone	High grain yield potential, Resistant to YR, Moderately Resistant-Moderately Susceptible to LR and SR (Ug99), Good grain quality
Rakhshan	Bread wheat	SHARP/3/PRL/SARA//TSI/VEE#5/5/VEE/LIRA// BOW/3/BCN/4/KAUZ CMSA00Y00820T-040M-0P0Y-040M-040SY-030M-7ZTM-0ZTY-0M-0SY	SPII, Iran	CIMMYT	ME1 = Temperate Zone	High grain yield potential, Resistant to YR, LR and SR (Ug99), Good grain quality, Good performance in terminal drought condition
Shavour	Bread wheat	Rsh*2/10120//Zagros	SPII, Iran	Iran	ME1 = Southern Warm and Dry Zone	Early Maturity, Adapted to late planting, Tolerant to terminal drought and heat stresses, Resistant to SR (Ug99), Moderately Resistant to YR, Good grain quality
Hana	Durum wheat	INTER_16/SNITAN/9/USDA595/3/D67.3/RABI//CRA/4/ ALO/5/HUI/YAV_1/6/ARDENTE/7/HUI/YAV79/8/POD_9 CDSS02Y00154S-0Y-0M-21Y-0Y	SPII, Iran	CIMMYT	ME 1= Temperate Zone	High grain yield potential, Resistant to YR and LR, Good grain quality
Pazh	Triticale	GNU/ASAD//ARDI/3/MANATI_1/4/FAHAD_5 CTSS94Y00479T-A-2M-0Y-0B-2Y-0B	SPII, Iran	CIMMYT	ME1 = Marginal Lands in Temperate Zone	High yield potential, Resistant to YR, Resistant to lodging, Tolerant to grain shriveling,

CIMMYT

Rakhshan = SHARP/3/PRL/SARA//TSI/VEE#5/5/VEE/LIRA// BOW/3/BCN/4/KAUZ

CMSA00Y00820T-040M-0P0Y-040M-040SY-030M-7ZTM-0ZTY-0M-0SY

Wheat Cultivars released in Iran in March 2017

Name	Crop	Pedigree	Institute	Origin	Recommended for:	Important Traits
Khalil	Bread wheat	Bow"s"/Vee"s"//1-60-3/3/Cocoraque75/4/Chamran	SPII, Iran	Iran	ME1 = Southern Warm and Dry Zone	High grain yield, Resistant to YR, Moderately Resistant (in South)- Susceptible (in North) to LR and R-MR to SR (Local Race & Ug99, respectively), Very good grain quality (12.9% Protein)
Sadra	Winter Bread wheat	Azadi/Azar//Sardari IRW2000-1030-0MA-0MA-0SN-0SN-1SN	DARI, Iran	Iran	ME10 = North-west and North East of Iran	Higher grain yield, Moderately Susceptible to YR, Susceptible to LR, Moderately Resistant to Common Bunt, Plant height = 80 cm, Grain Color = White, and Good grain quality (Protein = 11.3%, Wet Gluten Index = 30, SDS = 55, Grain Hardness = 47 and Gluten Index = 50)

CIMMYT

Major Constraints:

1. **Shortage of Irrigation Water/**
2. **Low Soil Fertility/Organic Carbon**
3. **Poor Agronomy**
4. **Adapted Facultative/Winter Wheat Cultivars for Rainfed/Irrigated areas**
5. **Adapted early maturity, terminal heat/drought tolerant Spring Wheat Cultivars for Rainfed/Irrigated areas**

عنوان پروژه:
انتخاب مشارکتی ارقام و لاین های گندم آبی
participatory variety selection
نام روستا: کنگور
نام کشاورز: حاج برمی قومی نژاد
تاریخ کاشت: ۹۴/۹/۱۴
مصرف کودهای پایه:
سوپر فسفات تریپل ۱۵۰kgh
اوره ۷۵kgh
پتاس ۷۵kgh
میزان بذر مصرفی: ۳۵۰ دانه در متر مربع بر اساس وزن هزار دانه

New Project:

“Increasing the Productivity of Wheat and Wheat-Based Systems in Iran”

Three Main Thematic Areas:

1- Wheat Breeding and Seed Systems

2- Agronomy/Conservation Agriculture

3- Genetic Resources to Enhance Sustainability with Emphasis on Pre-Breeding and Generating Synthetic Wheats using Iranian Aegilops Accessions

CIMMYT
مرکز بین المللی تحقیقات ذرت و گندم
International Maize and Wheat Improvement Center
(CIMMYT)
Increasing the Productivity of Wheat and
Wheat-based systems in Iran
افزایش عملکرد گندم و بهره وری نظام های زراعی گندم بنیان در ایران
2017 – 2022
۱۳۹۵ - ۱۴۰۰

CIMMYT

CIMMYT
Increasing the Productivity of Wh
Wheat-based systems in Ira
2017 – 2022
۱۳۹۵ - ۱۴۰۰

مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی صفی آباد مفتخر است شما را گرامی میدارد.
Conservation Agriculture in Intensive Cereal Based Systems: Scalable Evidence from Indo-Gangetic Plains of South Asia
Mahesh K Gathala
(M.gathala@cigar.org)
International Maize and Wheat Improvement Center
CIMMYT.
مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی صفی آباد
safiabad.areo.ir
safiabad.areo.ir

CIMMYT MR
International Maize and Wheat Improvement Center
CIMMYT
International Maize and Wheat Improvement Center
مقدم جناب آقای دکتر زند
معاون محترم وزیر
و رییس سازمان تحقیقات،
آموزش و ترویج کشاورزی
را به مراسم افتتاح دفتر
مرکز بین المللی تحقیقات
ذرت و گندم
(CIMMYT) گرامی می داریم
دفتر مرکز بین المللی تحقیقات
ذرت و گندم (CIMMYT) در ایران
CIMMYT
International Maize and Wheat Improvement Center

Thank you