

Explanatory notes on the 2009/2010 Cereal International Testing Program (CITP), ICARDA

BARLEY

ICARDA has the global mandate for barley improvement. ICARDA's Barley project develops nurseries for a wide range of environments and distributes them worldwide. Starting January 2008 operations in Mexico have been terminated and the Latin American program relocated to ICARDA Headquarters. Therefore all barley nurseries are developed, prepared and dispatched from ICARDA Headquarters in Aleppo.

- A. The International Barley Yield Trials and Observation Nurseries for Low Rainfall Areas (**LRA**) and Moderate Rainfall Areas (**MRA**) are mainly adapted to lowlands where winter is not severe.

The low rainfall set is targeted for non-irrigated areas with about 200-300 mm of rainfall, whereas the moderate rainfall set is targeted for areas with about 300-400 mm of rainfall, or for low rainfall areas with supplementary irrigation. The international barley yield trials and observation nurseries for Low Rainfall Areas are further divided into cool-winter (**LRA-C**) and mild-winter (**LRA-M**). Most of the entries in the cool-winter set can tolerate absolute minimum air temperature of -10°C , although some may show minor leaf damage. The mild-winter set consists of entries for areas where the absolute minimum air temperature is above -5°C . None of the nurseries above includes cold resistant lines.

The International Barley Yield Trial and Observation Nursery for High Input (**HI**) are targeted for areas where barley is grown under no moisture stress and with the use of optimum level of inputs.

- B. The International Barley Yield Trials and Observation Nurseries with winter types are targeted for high elevation areas or continental areas with severe winters. These materials require vernalization. Therefore, they are not suitable for the mild-winter lowland areas and tropical high altitude areas, or for spring planting. They are adapted to both low and moderate rainfall areas with cold winters ranging from -5°C to -25°C .
- C. Barley germplasm pools and special nurseries include lines with resistance to specific pests, combination of pests, or with specific characteristics.

DURUM

The International Durum Observation Nurseries (IDON-10MDryland) and Yield Trials (IDYT-10) and Durum Segregating Populations for the Mediterranean Drylands (IDSP-10MDryland) are targeted to the three agro-ecologies: 1) Mediterranean Continental Areas (MCA), 2) Mediterranean Temperate Areas (MTA), and 3) Mediterranean High Altitude Areas (MHAA).

Mediterranean Continental Areas (MCA): The durum materials are targeted for the environments with cold winters and terminal stresses (drought and heat); and with biotic stresses such as yellow rust, common bunt, and wheat stem saw fly.

Mediterranean Temperate Areas (MTA): The durum materials are targeted for the environments with mild winters and terminal stress with severe attacks of leaf rust, *Septoria tritici*, root rots, Russian Wheat Aphid (RWA), and Hessian fly.

Mediterranean High Altitude Areas (MHAA): The durum materials are targeted mainly for the Anatolian and Atlas plateaus where severe cold, boron toxicity, and biotic stresses such as yellow rust, common bunt, stem rust and BYDV are the major constraints.

Durum germplasm pools and specific disease nurseries including lines with resistance to specific disease and insects are provided on request. Testing in hot spots at ICARDA in the Mediterranean basin, Nile Valley and Red Sea, Central and West Asia, is conducted in collaboration with pathologists, entomologists, and virologists.

- A. For 2009-10 cropping cycle there is one International Durum Yield Trial (33rd IDYT) and it comprise material adapted to Mediterranean continental (MCA) and temperate areas (MTA). . Similarly, the 33rd International Durum Observation Nursery (33rd IDON) includes advanced durum entries for Mediterranean continental and temperate areas. Also for the 2009/10 cycle the first stem rust resistant durum nursery (1st SRRDN) comprising lines with adequate level of resistance to stem rust race Ug99 (based on results of combined screening for stem rust at Middle East hot spot at Terbol, Lebanon and hotspot at Debre Zeit,-Ethiopia) is available.
- B. In addition durum segregating populations (DSP) composed of crosses made for Mediterranean dryland areas; and durum crossing block (DCB) comprising selected regional varieties with abiotic (drought, salinity, heat, cold) and biotic (rusts, *Septoria*, Hessian fly, wheat stem sawfly, barley yellow dwarf virus) stress resistance/tolerance sources and end-use quality sources are also provided upon request.

SPRING BREAD WHEAT

- A In December 2005, ICARDA and CIMMYT signed a Memorandum of Understanding, for a joint ICARDA-CIMMYT Wheat Improvement Program (ICWIP) for Central and West Asia and North Africa (CWANA) hosted at ICARDA; all research in ICWIP for CWANA is jointly undertaken by ICARDA and CIMMYT.
- B The spring bread wheat International Nurseries, Yield Trials, Segregating Populations and specialized Gene Pools of the joint ICARDA-CIMMYT Wheat Improvement Program (ICWIP) for Central and West Asia and North Africa (CWANA) wheat production systems are targeted to agro-ecological zones classified based on precipitation and cropping season temperatures. Based on precipitation the targeted environments are classified into drylands (average 250-400 mm) and favorable/irrigated (>400 mm) environments and on the basis of cropping season temperatures the environments are subdivided into Continental Areas (CA) characterized by relatively low winter temperatures; Temperate Areas (TA) characterized by relatively cool mild winters and CWANA Low Latitude (CWANA-LL) areas characterized by relatively mild winters and prone to heat stress during the growing season.
- C Spring bread wheat germplasm pools and special nurseries include lines with resistance to specific diseases, pests, combination of diseases/pests, or with specific characteristics. In 2009/10 cycle two specialized stem rust resistant yield trials will be distributed to NARS, one each for dryland (CWANA 2nd SRR DSBWYT) and favorable environments (CWANA 2nd SRR FA/IRSBWYT), comprising lines with adequate level of resistance to stem rust race Ug99 based on results of combined screening at Ug 99 hotspots in East Africa at Debre Zeit Ethiopia and Njoro-Kenya .
- D *The following is the description of the main Spring Bread Wheat Nurseries for 2009/10 Season:*
- 1) CWANA 10th Spring Bread Wheat Observation Nursery (CWANA 10th SBW-ON) is composed of two sections, the first section: (A) CWANA Favorable Areas (FA), targeted to temperate Irrigated and high to moderate rainfall areas (>400 mm), and the second section (B) for temperate and continental Mediterranean low rainfall (LR) areas (250-400mm).
 - 2) CWANA Temperate Areas 10th Dryland Spring Bread Wheat Yield Trial (CWANA-TA 10th DSBWYT) is targeted for temperate Mediterranean rainfed environments with low rainfall (average 250-400 mm) and relatively cool winter temperatures. Main abiotic constraints include terminal drought and heat stresses; biotic constraints include rusts and Septoria leaf blotch. This nursery is not recommended for irrigated or high rainfall areas.
 - 3) CWANA-Continental Areas 10th Dryland Spring Bread Wheat Yield Trial (CWANA-CA 10th DSBWYT) is targeted to Mediterranean Continental low rainfall areas (average 250-400 mm) with relatively low winter temperatures.
 - 4) CWANA-Continental Areas 10th Irrigated Spring Bread Wheat Yield Trial (CWANA-CA 10th IRSBWYT) is targeted to CWANA continental environments with moderate to high rainfall (>400 mm) or irrigation, with relatively low winter temperatures.
 - 5) CWANA Low Latitudes 4th Irrigated Areas Spring Bread Wheat Yield Trial (CWANA-

(CWANA-LL 4th IASBWYT) is for CAWNA environments with moderate to high rainfall (>400 mm) or irrigation, with relatively mild winters and high fertility level. Materials adapted to heat tolerance will be included in the in this nursery.

- 6) CWANA 2nd Stem Rust Resistant Yield Trial :
- A. CWANA 2nd Stem Rust Resistant Yield Trial-Favorable/irrigated environments
 - B. CWANA 2nd Stem Rust Resistant Yield Trial-Dryland environments

WINTER/FACULTATIVE BREAD WHEAT

Winter-facultative bread wheat nurseries are prepared through the Turkey-ICARDA-CIMMYT International Winter Wheat Improvement Program (IWWP) and will be dispatched from Ankara, Turkey. This germplasm is targeted for cold-winter areas such as those in Turkey, Iran, Central Asia and Caucasus countries, and Highlands of Afghanistan, Pakistan and North Africa. The winter-facultative wheat germplasm possesses such desirable attributes as resistance to rusts and other diseases, and tolerance to cold and drought.

The International Facultative and Winter Bread Wheat nurseries and trials are targeted for high elevation areas in WANA or continental areas. These materials require vernalization. Therefore, they are neither suitable for the mild-winter lowland areas in WANA and tropical high altitude areas, nor for spring planting. They are adapted to both low and moderate rainfall areas with cold winters ranging from -5⁰C to -25⁰C.

The Winter/Facultative nurseries includes

1. **17th FAWWON-IR: 17th Facultative and Winter Wheat Observation Nursery for Irrigated Environments**
2. **17th FAWWON-SA: 17th Facultative and Winter Wheat Observation Nursery for Semiarid Environments**
3. **13th IWWYT-IR: 13th International Winter Wheat Yield Trial for Irrigated Environments**
4. **12th IWWYT-SA: 12th International Winter Wheat Yield Trial for Semiarid Environments**

Request Form for 2009/2010 Cereal International Testing Program (CITP), ICARDA

Please fill into the empty brackets the number of sets you require for each nursery. For yield trials, please also indicate whether you prefer one envelope of seed per plot—for machine planting—or six envelopes—per plot for hand planting.

BARLEY

Approximate
number of entries

International Barley Yield Trials:

IBYT-HI	<i>High Input conditions</i>	25
() 1 envelope/plot	() 6 envelopes/plot	
IBYT-LRA-C	<i>Low Rainfall Areas (Cool Winter)</i>	25
() 1 envelope/plot	() 6 envelopes/plot	
IBYT-LRA-M	<i>Low Rainfall Areas (Mild Winter)</i>	25
() 1 envelope/plot	() 6 envelopes/plot	
IBYT-MRA	<i>Moderate Rainfall Areas</i>	25
() 1 envelope/plot	() 6 envelopes/plot	
IBYT-W	<i>Winter Types</i>	25
() 1 envelope/plot	() 6 envelopes/plot	
INBYT	<i>International Naked Barley Yield Trial</i>	25
() 1 envelope/plot	() 6 envelopes/plot	

International Barley Observation Nurseries :

() IBON-HI	<i>High Input conditions</i>	70
() IBON-LRA-C	<i>Low Rainfall Areas (Cool Winter)</i>	70
() IBON-LRA-M	<i>Low Rainfall Areas (Mild Winter)</i>	70
() IBON-MRA	<i>Moderate Rainfall Areas</i>	70
() IBON-W	<i>Winter Types</i>	70

International Barley Segregating Populations:

() IBSP-S	<i>International Barley Segregating Pop. - Spring Types</i>	50
() IBSP-W	<i>International Barley Segregating Pop. - Winter Types</i>	50

BARLEY

Approximate
number of entries

International Barley Crossing Blocks:

() IBCB-S	<i>International Barley Crossing Block - Spring Types</i>	70
() IBCB-W	<i>International Barley Crossing Block - Winter Types</i>	70

International Special Nurseries:

() INBON	<i>Int. Naked Barley Observation Nursery</i>	50
() ISEBON	<i>Int. Spring Early Barley Observation Nursery</i>	50

International Barley Disease, Virus and Insect-pest Gene Pools:

() IBPMGP	<i>Powdery Mildew</i>	5
() IBSCGP	<i>Scald</i>	10
() IBCSGP	<i>Covered Smut</i>	10
() IBLSGP	<i>Loose Smut</i>	10
() IBStrGP	<i>Barley Stripe</i>	5

DURUM WHEAT

Approximate
number of entries

For Mediterranean Dryland:

() 33rd DDYT-CA/TA Dryland Durum Yield Trial Continental and Temperate Areas	24
() 33rd IDON-CA/TA Durum Observation Nursery- Continental and Temperate Areas	240
() DCB Durum Crossing Block Nursery	100
() DSP Durum Segregating Population	150
() 1st SR-DN 1st Stem Rust Durum Nursery	100

WINTER/FACULTATIVE BREAD WHEAT

Winter/facultative type (Turkey-ICARDA-CIMMYT collaborative effort):

() 17 th FAWWON-IR <i>Facult. and Winter Wheat Obs. Nursery for irrigated Env.</i>	100
() 17 th FWWON-SA <i>Winter/Fac. Wheat Obs. Nur. for Semi-arid Environments</i>	100
() 13 th IWWYT_IR <i>Int. Winter/Fac. Wheat Yield Trial for Irrigated Environments</i>	25
() 12 th IWWYT-SA 12 th <i>Int. Winter/Fac. Wheat Yield Trial for Semi-arid Environs.</i>	25

SPRING BREAD WHEAT

Spring type:

CWANA-CA 10th DSBWYT Dryland Spring Bread Wheat Yield Trial	24
() 1 envelope/plot () 6 envelopes/plot	
CWANA-CA 10th IRSBWYT Irrigated Spring Bread Wheat Yield Trial	24
() 1 envelope/plot () 6 envelopes/plot	
CWANA-TA 10th DSBWYT Temperate Areas 8 th Dryland Bread Yield Trial	24
() 1 envelope/plot () 6 envelopes/plot	
() CWANA 10th SBW-ON <i>Wheat Observation Nursery</i>	200
CWANA-LL 4th IASBWYT Irrigated Areas Spring Bread Wheat Yield Trial	24
() 1 envelope/plot () 6 envelopes/plot	
CWANA 2nd SRR FA/IR-SBWYT Stem Rust Resistant Favorable/Irrigated Areas Spring Bread Wheat Yield Trial	24
() 1 envelope/plot () 6 envelopes/plot	
CWANA 2nd SRR DSBWYT Stem Rust Resistant Dryland Spring Bread Wheat Yield Trial	24
() 1 envelope/plot () 6 envelopes/plot	

Request Form for 2009/2010 Cereal International Testing Program (CITP), ICARDA

Mailing Address

Name of cooperator(s):

Department:

Institute:

Street:

Town/city:..... P.O.Box:/ Zip Code.....

Country : Fax no.:

Tel. no.: Email address:

Shipping Address

Name:

Department:

Institute:

Street:

Town/city:..... P.O.Box:/ Zip Code.....

Country : Fax no.:

Tel. no.: Email address:

Airport for delivery (with custom clearance facility):

Preferred shipment mode: air-parcel post () or air-freight () or Express Mail Service ()

A phytosanitary certificate is provided with each shipment along with a Material Transfer Agreement (MTA). Please indicate if you also need the following documents:

Certificate of donation: Yes (), No () Invoice: Yes (), No ()

Please indicate clearly any additional declaration needed by the Plant Quarantine Control of your country for the requested crop(s). Please, indicate also special shipping instructions and when you wish the requested material to reach you.

Paper field books will be included in your Nursery shipments and if you wish to receive electronic versions of the data field books, please download a copy from our intranet WEB site

http://www.icarda.cgiar.org/NurseriesFieldBook/NurseriesFieldBook_index.htm

Please, if returning by E-mail, send to ICARDA-INT-NURSERY@cgiar.org

Questionnaire Form 2009/2010 ICARDA

Please kindly answer the following questions:

- 1) Since when have you been participating in this International Testing Program (ITP)?
- 2) Did you find the nurseries useful for your country?
- 3) Did you identify or release material for general cultivation from this ICARDA ITP?
- 4) If yes, please fill the following table.

Crop	Variety name	Pedigree	Year of release	Special features	No. of Hectar's planted to the variety

- 5) Do you run the on-farm trials including ICARDA lines)? If so, please list the entries selected which are in the current on-farm trials.
- 6) Did you find stress nurseries useful for identification of resistant sources in your country? If yes, please indicate the crop, stress and sources for particular stress.

Crop	Stress	Resistant source

- 7) Please, let us know your points of view towards improving the International Testing Program.

Kindly return this form along with your duly filled Request form.

Please, if returning by E-mail, send to [RSMALHOTRA \(ICARDA-INT-NURSERY@cgiar.org\)](mailto:RSMALHOTRA_ICARDA-INT-NURSERY@cgiar.org)

Thank you very much for your attention and kind cooperation.