CIMMYT's Relations with Turkey

Summary
Collaboration between CIMMYT and Turkey started in the mid-1960s, when the import of 22,000 t of Mexican wheat cultivars initiated Turkey's Green Revolution. CIMMYT scientists have been based in Turkey since 1971. During the last 25 years, nearly 70 wheat researchers were trained in Mexico. Since 1975, Turkey has released 33 wheat varieties derived directly or indirectly from CIMMYT germplasm; at present CIMMYT-related varieties cover around 75% of the country's spring wheat area. In 1986, Turkey and CIMMYT initiated the International Winter Wheat Program, which merged in 1990 with ICARDA's highland wheat program to form the joint Turkey/CIMMYT/ICARDA International Winter Wheat Improvement Program (IWWIP). The program's objective is to develop winter and facultative wheat cultivars for countries in West Asia and North Africa. A new target area for IWWIP is the Newly Independent States of the former Soviet Union, in particular the Central Asian Republics. Today, IWWIP distributes wheat germplasm to nearly 170 cooperators in more than 50 countries. The first varieties developed through this joint program have been released in several countries of West Asia.

CIMMYT and Turkey

The first contacts between CIMMYT and Turkey go back to the mid-1960s, when the Government of Turkey imported 22,000 t of Mexican wheat in 1967 for farmers in Cukurova. The rapid spread of these varieties resulted in a significant wheat production increase. Government official realized, however, that a steady flow of new varieties would be needed to further raise the yield level set by the Mexican varieties. They also realized that although the coastal regions had benefited from the Mexican spring-habit wheats, the Anatolian Plateau, which accounted for three-fourths of Turkey's wheat area, could not benefit from the Mexican cultivars because the Anatolian Plateau required cold-tolerant winter wheats. The Government of Turkey asked the Rockefeller Foundation to help to design a wheat improvement and training program for Turkish scientists, and in 1969 Turkey and the Rockefeller Foundation signed an agreement that established the National Wheat Improvement Project.

From the start, the project called on researchers from CIMMYT and Oregon Sate University (USA) to provide scientific assistance in critical areas and to train Turkish scientists. In 1971, two CIMMYT scientists were posted to Turkey. This event was the formal beginning of what was to be a fruitful collaboration between Turkey and CIMMYT.

From that time, about 70 wheat scientists from Turkey have been trained at CIMMYT-Mexico. Many of these researchers form Turkey's core of senior researchers and research administrators.

The National Wheat Improvement Program was a full success, resulting in a doubling of Turkey's wheat production. The initial objective, which was to make Turkey self-sufficient in wheat production, was achieved at the end of the 1970s. In some years, Turkey became a wheat exporter.

The International Winter Wheat Improvement Project

As mentioned above, CIMMYT's wheat germplasm had a tremendous impact on spring wheat production resulting in a steady yield increase of 1% per year. In contrast, yields in areas devoted to winter wheat scarcely increased, with the exception of the Central Anatolian Plateau.

Because temperatures in Mexico are not low enough to permit the breeding of winter wheat, CIMMYT approached the Government of Turkey to initiate a joint program to develop germplasm for winter wheat growing areas in developing countries. The answer was positive, and in 1986 a formal agreement was signed between both partners to establish the International Winter Wheat Improvement Program (IWWIP). CIMMYT would provide financial support and base two wheat scientists in Turkey. These researchers would work with their Turkish colleagues in the project, and Turkey would make its research infrastructure available to them. In 1990, IWWIP and the highland program of ICARDA in Syria merged to form the Turkey/CIMMYT/ICARDA IWWIP. Today, the project collaborates with all Agricultural Wheat Research Institutes in Turkey. The main research institutes involved are in Menemen, Eskisehir, Ankara, and Konya. The latter is the principal site for the project.

The main objectives of IWWIP are to:

- develop broadly adapted, high yielding, disease resistant winter wheat germplasm for the facultative and winter wheat growing areas in North Africa and Central and West Asia, and
- facilitate germplasm exchange among winter wheat programs.

These objectives are achieved through an extensive germplasm exchange with wheat programs in the target area. The Turkey/CIMMYT/ICARDA IWWIP also distributes the Facultative and Winter Wheat Observation Nursery. This nursery consists of advanced lines and wheat cultivars from the National Programs of Turkey, IWWIP, and many breeding programs around the world. It is sent to more than 170 cooperators in more than 50 countries, making it the most widely distributed wheat nursery worldwide.

The IWWIP annually makes around 1,500 crosses. The segregating populations and advanced lines are screened in Turkey, Syria, Iran, Mexico, and Romania. The most outstanding lines are than made available to national programs.

Impact of the Turkey/CIMMYT Collaboration

Since Turkey imported the first Mexican wheats in 1965, the country has released many improved bread wheat and durum wheat cultivars derived from CIMMYT lines. Today, CIMMYT-related cultivars are estimated to cover more than 75% of the spring wheat area in Turkey. Table 1 lists the varieties released in Turkey since 1975. These varieties are either direct releases of CIMMYT advanced lines or were selected from crosses in which a CIMMYT line was used as a parent. Although the IWWIP started only in 1986, the first cultivars derived from this program have been released in Afghanistan, Iran, Pakistan, and Turkey (Table 2).

The long-lasting collaboration between Turkey and CIMMYT has proven to be extremely fruitful for both partners. Turkey, once only a recipient of CIMMYT products, has transformed itself into a true research partner. Increasing wheat production in West Asia, North Africa, and Central Asia remains our prime objective. Together Turkey, CIMMYT, and ICARDA will be in the position to take up this challenge.

Table 1. Varieties released in Turkey since 1975, and varieties for which seed multiplication has been approved

Wheat type/year of release	Turkish variety name	Status
Spring bread wheat		
1975	Cumhuriyet 75	Released
1975	Sakarya 75	Released
1982	Ata 81[b]	Released
1985	Izmir 85	Released
1986	Cukorova 86	Released
1986	Marmara 86	Released
1986	Dogankent-I[a]	Released
1988	Genc 88	Released
1988	Kaklic 88	Released
1988	Kop	Released
1990	Yuregir	Released
1992	Seri 82	Released
1995	Basribey 95	Released
1995	Kasifbey 95	Released
1995	Seyhan 95	Released
1995	Kana	Seed multiplication
1995	Lira-SA	Released
1997	Bandirma 97	Released
1997	Karacabey 97	Released

1997	Pamukova 97	Released
Winter bread wheat		
1979	Kirkpanir 79[b]	Released
1985	Atay 85[b]	Released
1995	Kinaci 97	Released
1989	ES14[b]	Seed multiplication
1989	Gün 91[c]	Released
1995	Sultan 95	Released
1996	BDME94-1	Released
1997	Kinaci 97	Released
Spring durum wheat		
1975	Dicle 74	Released
1976	Gediz 75	Released
1981	Diyarbakir 81[b]	Released
1985	Balcali 1985	Released
1988	Ege 88	Released
1989	Sham I[a]	Seed multiplication
1993	Firat 93	Released
1993	Aydin 93[a]	Released
1995	Harran 95	Released
1995	Ceylan 95[a]	Released

a Derived from the CIMMYT/ICARDA program.
b Cross not made by CIMMYT, but one parent is a CIMMYT line.
c Cross made by CIMMYT, but selection done in Turkey.

Table 2. Released facultative or winter bread wheat cultivars, or cultivars with permission for seed multiplication, originating or distributed through TURKEY/CIMMYT/ICARDA/OSU IWWIP or derived from CIMMYT/OSU winter x spring wheat crosses

Name	Cross	Released	Origin	Year
Pamir 94	Ymh/Tob//Mcd/3/Lira SWM12289-7M-0M-8M-1M-3WM-0WM	Afghanistan	IWWIP	1994
Gul 96	ID8009994.W/Vee SWM15134-2WM-0WM-0SE-1YC-0YC	Afghanistan[a]	IWWIP	1997
Atay 85	Hys/7C	Afghanistan	Eskisehir/OSU	1985
Buck Oportuno	PI/Funo*2//Vld"S" F1/CO723595 SWO802012-9H-4WM-3WM-0WM	Argentina	OSU/IWWIP	1996
Navid=Krk 79	Hys/7C	Iran	OSU/Edirne	1979
Zarrin	NAI60/HVII//BUC/3/F59.71/GHK SWO791095	Iran	OSU/IWWIP	1996
Gerek 79	MTA/MY48//4-11/3/YY305	Pakistan-NWFP	Eskisehir	1992

Atay 85	Hys/7C	Tajikistan[b]	Eskisehir/OSU	1986
Gun 91	F35.70/Mo SWM7155-1A-1A-1A-0A	Turkey-Ankara	CIMMYT-F2/Tur	1991
Kirkpinar 79	Hys/7C	Turkey-Edirne	OSU/Edirne	1979
Sultan 95	Agri/Nac SWM6599-2H-1H-3P-0P-5M-3WM-0WM	Turkey-Eskisehir	IWWIP/OSU	1995
BDME94-1	KS82142/CUPE SWM16260-10WM-030WM-2YC-0YC	Turkey-Konya	IWWIP	1996
Kinaci 97	Ymh/Tob//Mcd/3/Lira SWM12289-7M-0M-8M-1M-3WM-0WM	Turkey-Konya	IWWIP	1997

a Candidate for release.
b 150 t certified seed imported by Aga Khan Foundation from Turkey in 1996 and 1997.

Published on November 2000

CIMMYT© April, 2002