2010, A Wheat Odyssey (reflections on private wheat breeding in the Southern Plains).

Sid Perry. WestBred, a Unit of Monsanto, 14604 S. Haven Rd., Haven, KS 67543, USA.

Most private wheat breeding programs have, over time, attempted a number of different avenues to differentiate themselves and generate a profit outside traditional breeding focuses. These have included hybrid wheat, special end use quality coupled with identity preservation, and in the future, transgenic wheat. Although conceptually successful, hybrid wheat was hampered by breeding bottlenecks and high production costs. Identity preserved, end use quality has had niches of success but has failed to materialize as a major contributor to wheat production due to low seed margins, less than hoped for 'value added' opportunities, storage problems, and inconsistent variety performance. In the past 25 years, there has been an increase in the number of biotic and abiotic factors, which have become significant hindrances to the rate of progress that breeders have envisioned. As biotechnology has developed and been implemented into competing crops such as corn, soybeans, canola, and cotton, resources have withdrawn from wheat into these more 'private friendly' crops. As we begin a new decade, the wheat industry seems poised to embrace transgenic wheat, and there is an anticipated return of significant investment into wheat research both at the public and private level. Public and private breeding programs have existed in a synergistic relationship that contrasts significantly to other major breeding crops. This relationship will be a key focus on the introduction and acceptance of transgenic wheat.

The search for broad adaptation and genetic diversity: the experience of an international breeding program.

Alexey Morgounov. International Maize and Wheat Improvement Center (CIMMYT), P.K. 39, Emek 06511 Ankara, Turkey.

The International Winter Wheat Improvement Program (IWWIP) was established 25 years ago as a joint program between Turkey, CIMMYT, and ICARDA. The IWWIP aims to develop winter/facultative germplasm for the region of Central and West Asia. It operates multilocational breeding network in Turkey utilizing its natural diversity of wheat production environments. The program also plays a very important role in facilitating the global winter wheat germplasm exchange among its 100+ coöperators in more than 50 countries. The IWWIP develops germplasm for both irrigated and semi-arid areas combining adaptation with the resistance to prevailing pathogens (yellow, leaf, and stem rusts) and bread-making quality. Advanced lines developed by the program, along with the selected introduced germplasm, are annually distributed through international nurseries to cooperators for evaluation, selection, and utilization in their breeding programs. The success in broad adaptation and cultivation of CIMMYT spring wheat varieties was one of the driving forces to establish a breeding program in Turkey, which would replicate similar success for winter wheat. However, despite identification of the broadly adapted winter wheat lines, none of the varieties developed so far was adopted on areas similar to that of spring wheat. The regional diversity of winter wheat production environments might be one of the reasons for specific adaptation playing a relatively important role. Genetic diversity is an aspiration of many breeding programs to assure that new varieties are not vulnerable to biotic and abiotic stresses. The IWWIP, being an 'engine' of global winter wheat germplasm exchange, has access to tremendous genetic diversity represented by modern germplasm from all major breeding programs. Utilization of this diversity by the IWWIP proved beneficial for adaptation, abiotic stresses, and new emerging threats such as stem rust Ug99 or the cereal cyst nematode. The IWWIP traditionally has maintained close linkages and cooperation with the U.S. winter wheat breeding community. Possible avenues to enhance this collaboration for priority research topics (drought tolerance, rust resistance, and winterhardiness) are presented.