

# Wheat Cultivar Development

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## BACKGROUND

Through breeding efforts and better management practices, grain yield of wheat in Texas has increased from an average of 20 bushels per acre during the 1960's to 30 bushels per acre during the 1990's (Texas Agricultural Statistics Service). As a result, less land, money and natural resources are needed to produce a bushel of wheat. Modern cultivars generally have a higher yield potential, are more efficient at utilizing available natural resources, and respond better to inputs. They generally have greater resistance to pathogens and insects, thus reducing the need for chemical applications. The continuous long-term investment made by Texas AgriLife Research and the Texas Wheat Producers Board has netted substantial returns. At one time over half of the hard winter wheat acreage in the U.S. was planted to TAM cultivars.

## OBJECTIVES

The goal of the Texas AgriLife Research wheat breeding program is to design cultivars for specific adaptation areas and management programs in Texas. The breeding objectives and the breeding process are outlined in the figures below.

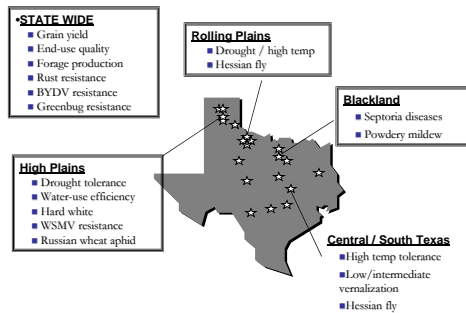


Figure 1. Wheat is grown throughout Texas with many different environmental challenges. The stars indicate breeding trial locations.

## Process of Cultivar Development

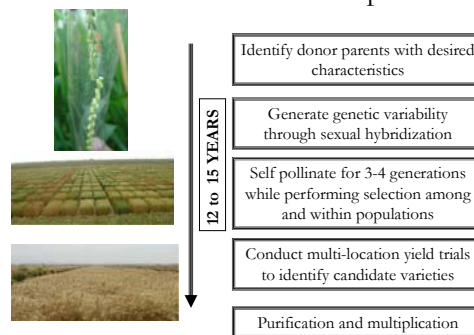


Figure 2. Wheat breeding requires a long-term investment. Crosses being made today may not result in a new variety until 2020.

## RESULTS

Five new hard wheat cultivars, two winter triticale cultivars and one oat cultivar have been released by the breeding program since 2002. TAM 111 hard red winter wheat was released in 2002 and licensed to Agripro Wheat. It has good yield under dryland and irrigated conditions, excellent bread-making quality, and is resistant to stripe rust. Fall 2005 planted area of TAM 111 is predicted to be 10 percent of the wheat acreage of Colorado, Western Kansas and the panhandles of Oklahoma and Texas. TAMcale 5019 and TAMcale 6331 (both released in 2003) are the first triticale cultivars to be developed and released by Texas AgriLife Research, giving stocker cattle producers a wider range of options for winter pasture. The 2005 AgriLife Research oat release, TAMO 405, is the only oat cultivar adapted to Central and South Texas with resistance to crown rust and stem rust.