INTRODUCTION

Cotton performance trials were conducted during 2005 at Lubbock, Halfway, and Pecos, Texas Agricultural Experiment Stations. The Lamesa Dryland variety test was planted on the AG-CARES research farm. An irrigated variety test was also planted near Tulia on the Dale Swinburn farm and near Lamesa on the Donald Love farm.

The Lubbock Station tests were planted in either Amarillo or Olton soils, the Halfway Station tests in Pullman clay loam soils and the Pecos Station tests were planted in Hoban silty clay loam soils.

The 2005 season began with excellent subsoil moisture conditions from previous fall rains but turned dry in April and May, which impeded dryland planting and emergence in dryland fields. Rains began in earnest by July and continued into August for the southern acreage, with some communities receiving over 10 inches. Some areas to the northwest of Lubbock got heavy rains and some hail in late August. The late start for much of the dryland acreage (waiting on a planting rain) was beneficial as it resulted in summer rainfall patterns to fall in line to optimize yields. Timely rains reduced the need for supplemental watering on irrigated land and moderate temperatures produced near optimal conditions for cotton production. These condition allowed their genetic potential for the current list of planted cotton cultivars approach. Rainfall totals at Lubbock were below the normal of 18.5 inches with just slightly over 15 inches through November. Some other areas finished up with above average rainfall amounts.

Open weather and higher than usual humidity levels added to optimal production conditions. While it was cool in June and with no significant rainfall in October and November, this has resulted in fiber quality greatly improved over last year. The exception is the lower micronaire because of the addition of a later maturing top crop and bolls in 2nd, 3rd and 4th fruiting branch positions that normally would not have opened.

The open fall weather shortened the harvest season considerably compared to last year's extended harvest period. But the sheer size of the crop will push ginning well into 2006. A delayed plant-killing freeze occurred again in late November. Much of the cotton did receive harvest aid chemical applications, allowing harvest to begin well before the late November freeze.

Irrigated acreage will again yield up to 5 bales with an average across all acres predicted at about 770 pounds. A record production year is on track with 56 million bales projected for 3.46 million acres. This will beat the 2004 record of 4.8 million bales. Approximately 3.7 million acres were planted with about 100,000 acres lost to weather early and the rest later in the season. Abandonment was about 7%, significantly below average for the area. Seedling disease was minimal but verticillium wilt was widespread although not tremendously damaging to yields.

Insects reduced yield by 4.5%, up from 4% last year. But significantly reduced weather losses (11.3%) and record yields will mask most of this loss. Thrips infestations were high in the fields north of Lubbock where maturing winter wheat historically provides the source for much of these western flower thrips. Unlike the last couple of years, thrips infestations were of short duration, often disappearing by the 5th true leaf stage. The use of at-plating insecticides usually provided sufficient residual activity to cover the infestation period. The Cruiser seed treatment has gained in popularity but still lasts 5-7 days less than Temik at the 3.5 pound per acre rate. Gaucho Grande did not appear to provide enough control improvement over Gaucho as a seed treatment for western flower thrips to make it competitive with Cruiser.

Square retention was again exceptionally high with most fields averaging over 95% for the first several weeks of squaring. The absence of early area-wide cotton fleahopper or western tarnished plant bug infestations, coupled with good growing conditions contributed to this high square set. Both of these pests were a minor problem in most fields during the early season with some increases in plant bugs later in the season. Fleahopper numbers were highest in the areas north of Lubbock but few fields required treatment. Only a very few fields required treatment for western tarnished plant bug infestations and these were usually associated with weed or crop hosts that were rendered unsuitable by mowing or by drying up.

Boll weevil numbers increased in a number of areas, especially late in the season. The entire High Plains area was under an eradication program but the spread of overwintering populations out of the St. Lawrence and Permian Basin Zones and optimal cotton growing conditions favored increased boll weevil

problems. Weevil numbers were up in all zones with some reproduction detected in the Permian Basin (extensive), Western High Plains (isolated), and the Southern High Plains/Caprock (isolated) zones. The Panhandle Zone continues to detect zero weevils while the Northwest Plains Zone caught one weevil, probably a hitchhiker. The Northern High Plains zone trapped 17 weevils, the Southern High Plains/Caprock zone 368 weevils, the Western High Plains zone 354 weevils and the Permian Basin zone 27,046 weevils. Most of the area of the five High Plains zones was in Phase II of the Maintenance program with the Panhandle most likely scheduled to move to Phase III in 2006. This will greatly reduce trapping and extend trap-monitoring intervals except along highways.

Bollworm infestations were light in the northern areas until September when a heavy egg lay occurred from moths coming from maturing corn. Only a single major wave of activity was observed. Infestations of small larvae ranged between 2,000-120,000 per acre with most infestations averaging around 12,000 per acre. Our nominal threshold is 10,000 small larvae per acre. Approximately 80-90% of all these fields required a single application of a cypermethrin insecticide at a cost of about $6.00 per acre. Most of the Bollgard fields required treatment but none of the Bollgard II fields triggered an application. Acreage south of Lubbock was exposed to two generations of bollworms and later fall armyworms. Misidentifications often lead to the selection of an inappropriate insecticide and poor control when armyworms were involved. Up to three applications were made with only the first involving purely bollworms. The third application was probably unwarranted. Bollworms were treated on 50% of the acreage south of Lamesa. Fall armyworms were treated on 85-90% of this acreage at least once. No control problems were thought to be associated with resistance this year.

Aphid numbers were exceedingly low across much of the area again this year, probably due to a limited amount of early spraying and higher numbers of beneficial arthropods. Both aphids and spider mites were a problem south of Lubbock where multiple applications of pyrethroids and other insecticides reduced natural enemies and flared these pests. Up to 75% of the acreage around Lamesa and south was sprayed for aphids and 30-35% sprayed for spider mites. Many of these spider mite applications were probably unnecessary.

Pink bollworm infestations were less of a problem this year than in 2004. Reduced overwintering survival as measured in emergence cage studies and increased use of Bollgard cultivars may have contributed to this decline. Planted Bollgard acreage across the High Plains remains low at about 13%. An area-wide trapping program indicated pink bollworm moths were in virtually all High Plains cotton growing areas except the extreme north but field infestations were limited to the southern acreage. While over 20 insecticide applications were made to some fields last year, most infested fields received 3 or fewer applications with most addressing the emerging overwintered population of moths.