Bollworm/Tobacco Budworm Abundance in Pheromone Traps During the Past Twenty-Four Years in Northwest Louisiana

S. Micinski and C. Cookson

LSU AgCenter, Red River Research Station, 262 Research Station Drive, Bossier City, LA 71112

Introduction

The bollworm (BW), *Helicoverpa zea* (Boddie), and the tobacco budworm (TBW), *Heliothis virescens* (F.), remain two important insect pests in cotton, *Gossypium hirsutum* L., across the mid-south. Whether in conventional or Bt transgenic cotton, management strategies ultimately depend on determining the abundance of these two pests and crop damage.

Pheromone traps have proven to be an important tool in assessing the presence and relative numbers of BW and TBW in an area. Pheromone trap catches have been used to map the distribution of BW and TBW across the cotton growing region of the U.S. (Lopez et al. 1987, Goodenough et al. 1988) and to examine seasonal changes in their abundance (Vargas-Camplis and Wolfenbarger 1992).

Micinski et al. (2008) examined the abundance of the BW and TBW in pheromone traps in northwest Louisiana from 1986-2005. Presented here are data on the abundance of these two pests from 1986 to 2009.

Materials and Methods

Five wire cone traps for BW and five traps for the TBW were located on the Red River Research Station, Bossier City, LA. Traps were placed at approximately the same locations during the entire 24-year period. Trap details are described fully in Micinski et al. (2008).

Results and Discussion

Between 1986 and 2005, bollworm moths comprised 79.0, 82.7, and 63.5% of the total male moths captured in pheromone traps during June, July, and August, respectively (Micinski et al. 2008). During the last 4 years, bollworm moths comprised 93.2, 94.8, and 93.6% of the total male moths captured in traps during June, July, and August, respectively.

Trap captures of tobacco budworm male moths in June and July neared or exceeded 2000 moths per month for the years 1986-1992 (Fig. 1 and 2). Following this period (1986–1992), trap captures exceeded 2000 per month only in 2000 and 2001.

Results and Discussion cont.

In August, TBW moth captures appeared to be on a 5-year cycle with peaks in 1986 and 1987 then a 3 year decline with peaks again in 1991 and 1992 (Fig. 3). However, following the 1991-92 peaks the decline continued until 2000 and 2001. Moth captures have been in a general decline since 2001. The summary graph (Jun–Aug) totals show a similar pattern to the August totals (Fig. 7). Moth captures exceeded 12,000 for the 3-month period during 1986-88, 1991 and 1992, and then again in 2000 and 2001.

Bollworm male moth captures in June peaked in 1996 with captures exceeding 25,000 (Fig. 4). In no year prior or since, have trap captures reached 15,000 in June. July trap captures exceeded 15,000 in 6 of the past 24 years (Fig. 5). Trap capture totals for July exceeded the previous high in 1996 during 2003 and 2009. The highest August trap captures occurred in 1986 exceeding 25,000 moths (Fig. 6). Moth captures in the 15,000 range occurred in 1988, 1998, 2002, 2005, and 2009. Bollworm moth captures for the 3-month period (Jun through Aug) had 3 large peaks that exceeded 45,000 in 1986,

Results and Discussion cont.

1996, and 2009 (Fig. 8). The 2009 peak exceeded 55,000 moth captured during the 3-month period.

Literature Cited

Goodenough, J.L., J.A. Witz, J.D. Lopez, and A.W. Hartstack. 1988. Patterns of occurrence of *Heliothis* spp. (Lepidoptera: Noctuidae), 1983-1985. J. Econ. Entomol. 81: 1624-30.

Lopez, J.D., T.N. Shaver, and J.L. Goodenough. 1987. Research on various aspects of *Heliothis* spp. Pheromone trapping. *In* Proceedings, Beltwide Cotton Conferences. pp. 300-307. National Cotton Council, Memphis, TN.

Micinski, S., D.C. Blouin, W.F. Waltman, and C. Cookson. 2008. Abundance of *Helicoverpa zea* and *Heliothis virescens* in pheromone traps during the past twenty years in northwestern Louisiana. Southwestern Entomol. 33(2): 139-149.

Vargis-Camplis, J. and D.A. Wolfenbarger. 1992. Bollworm / tobacco budworm: fluctuation during the 1990-1991 cotton season in northern Tamaulipas. *In* Proceedings, Beltwide Cotton Conferences. pp. 885-886. National Cotton Council, Memphis, TN.

Tobacco budworms (June – August)

Fig. 1. Tobacco budworm male moths captured in Jun, 1986 - 2009.

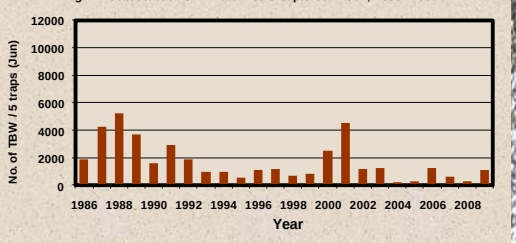


Fig. 2. Tobacco budworm male moths captured in Jul, 1986 - 2009.

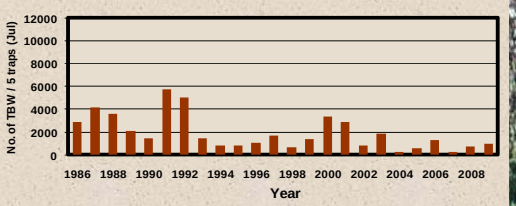
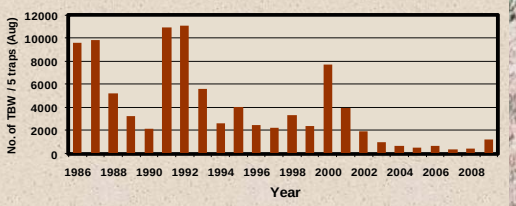


Fig. 3. Tobacco budworm male moths captured in Aug, 1986 - 2009.



Bollworms (June – August)

Fig. 4. Bollworm male moth captured in Jun, 1986- 2009.

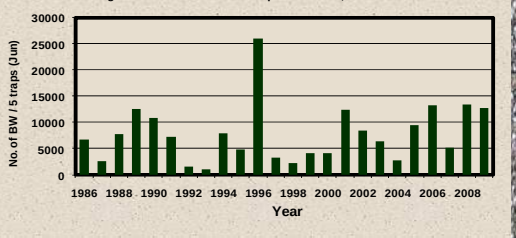


Fig. 5. Bollworm male moths captured in Jul, 1986 - 2009.

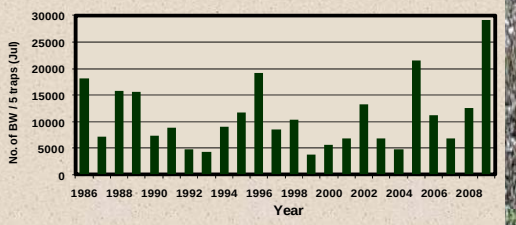
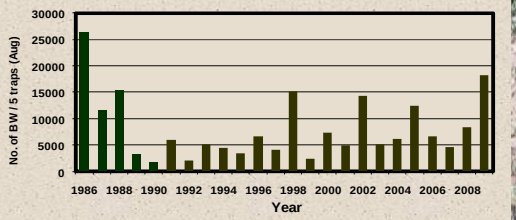


Fig. 6. Bollworm Male moths captured in Aug, 1986 - 2009.



TBW / BW (June – August totals)

Fig. 7. Tobacco budworm moths captured Jun-Aug, 1986 - 2009.

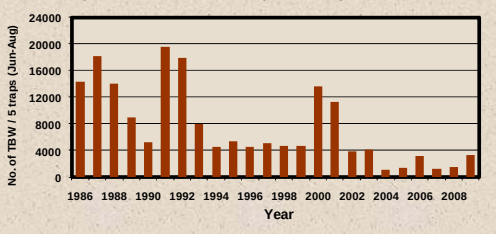


Fig. 8. Bollworm moths captured Jun-Aug, 1986 - 2009.