AgriLIFE EXTENSION
Texas A&M System

INSECTS AND WEEDS IN FOCUS

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VOL. XXXIV NO. 1 ENTO/SCS January 13, 2008

TEXAS GULF COAST GRAIN HANDLERS CONFERENCE

The annual Texas Gulf Coast Grain Handlers Conference will be held Thursday, January 22, 2009 at the El Campo Civic Center (located just off of Hwy 71 north of downtown El Campo), 2350 North Mechanic Street, El Campo, TX.

There is a $15 per person registration fee which covers meal etc., for those who register by January 16. The fee will be $20 at the door. You may pre-register by calling 979/732-2082. Pre-registration would be most beneficial in estimating a meal count. The program is attached for your viewing.
RDP

A TRIBUTE TO THE TEXAS PEST MANAGEMENT ASSOCIATION

Integrated Pest Management (IPM) programs were formally implemented in Texas in 1972 with Federal and State help to gain grower acceptance and use of field scouting techniques, to promote the use of economic thresholds on which to base pest control decisions, and to utilize environmentally sound techniques for management of pests (arthropods, weeds, and diseases). The Texas Pest Management Association (TPMA) developed out of a need for a partnership of agricultural producers and public institution educators to promote IPM.

The TPMA partnership includes association with Texas AgriLife Extension, Texas Department of Agriculture, Texas Farm Commodity Organizations, USDA, US EPA, and IPM Centers, nationwide. These partnerships have been the key to success of State IPM efforts in finding solutions to pest problems. The Association is the only statewide, multi-commodity producer organization in the country whose only reason to exist is to enhance the implementation of IPM. Both TPMA and Extension IPM programs at the county level are represented by IPM Steering Committees which determine priorities focused on local issues.

In recognition of their work to promote IPM in this cooperative effort, TPMA was presented the Partnership Award from Texas AgriLife Extension. For those of us in the Texas AgriLife Extension Service, we acknowledge and thank TPMA for their continued support and counsel. TPMA has enhanced our work with the agricultural producers of the Coastal Bend Extension District with programs currently headquartered in Calhoun and Wharton counties. RDP

COASTAL BEND FLEAHOPPER CONTROL RESEARCH SUMMARY

Lint yield response to control of cotton fleahopper under similar infestation levels varied from no yield increase to more than 200 lb/acre increase in studies conducted from 1993 to 2008 in the Coastal Bend of Texas. In the 18 field studies, treated cotton averaged 50 lb/acre more than nontreated. Below is a possible explanation of field conditions that affect response of the cotton plant to fleahopper control.

In a 2006 study by Parker and Buehring no differences were observed in lint production, and all but one treatment numerically had less yield compared with the nontreated cotton. In this case fleahopper numbers averaged 33.9 per 100 plants during late squaring and early bloom period. Very dry soil conditions occurred at the study site during early season, and the fleahopper was suspected to have had a beneficial effect, in that early fruit removal by the insect allowed plants to develop a larger root system and plant size, subsequently delaying cutout and taking advantage of maturing bolls under more favorable soil moisture conditions. In cases in which soil moisture was adequate for favorable plant growth, fleahopper control resulted in yield increases exceeding 200 lint pounds/acre (Parker 1996, Parker et al. 2004, Parker and Chilcutt 2008).

Response of cotton fruiting to fleahopper control and lint production is greatly influenced by growing conditions, especially water availability. In dryland production systems very high retention of fruit on the earliest positions (1st squaring week) achieved through fleahopper control resulted in no yield increase compared with delaying treatment until the 2nd squaring week (Fig. 1). Under season-long dry soil conditions, there was even a reduction in yield when insecticide was applied for fleahopper, which resulted in a high square retention rate on the first few fruiting sites (Fig. 2). Lack of timely control of fleahopper following the 1st squaring week (with adequate rainfall to maintain plant growth) losses from the insect were shown to exceed 200 lb lint/acre.

Plant mapping showed some of the relationships of how cotton responds to fruit loss caused by the fleahopper. Timing of treatments for the fleahopper might be used to manipulate cotton fruiting rates and position of fruit on plants as a mechanism to maximize yield and profit. Fleahopper management tactics have changed due to growing longer-season cotton varieties, more effective control of other insect pests, and lack of boll weevils in the production system.

Factors affecting the change in fleahopper management tactics from that of a decade ago possibly include growing of longer season cotton varieties, more effective control tactics for other insect pests, and lack of boll weevils in the production system. RDP

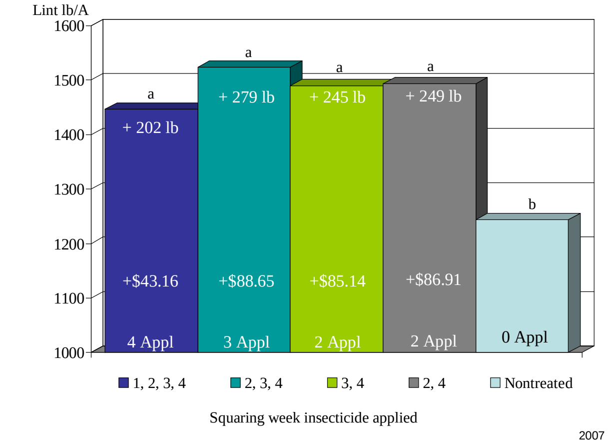

Fig. 1 Effect of fleahopper insecticide and treatment timing on cotton yield and dollar return, Texas AgriLife Research & Extension Center, Nueces County, TX, **2007**. Cotton value based on $0.55/lb for lint and $0.65/lb for seed using a factor of 1.56 times lint weight. Costs include Centric 40WG ($4.50/oz), application ($2.50/acre) and harvesting/hauling/ginning cost for extra lint above nontreated cotton ($0.21/lint). LSD (P=0.05).

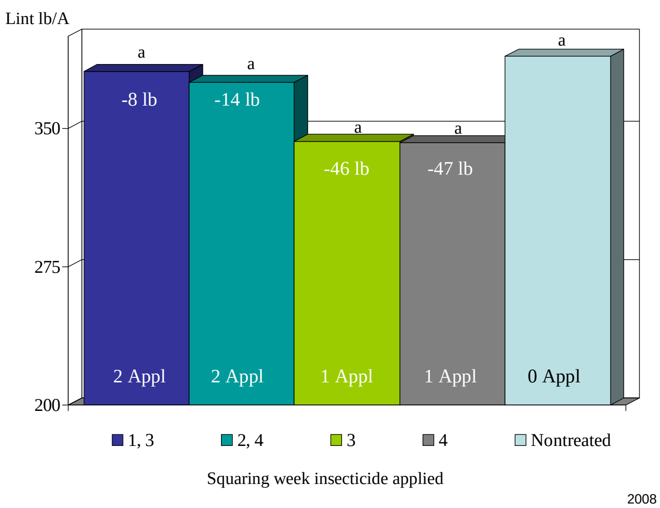

Fig. 2. Effect of fleahopper insecticide and treatment timing on cotton lint yield, Joseph Respondek Farm, DeWitt County, TX, **2008**.

MEASURING FIELD VARIATION AND IMPLICATIONS FOR COMPARISON OF FIELD PRACTICES

Agricultural producers and others may make a decision to use some practice based on a certain treatment yielding more than another based on, for example, something no more than half of a field or single strips planted in hybrids for comparison. Others might state after hearing that five bushels was not significant: "Five bushels might not be significant to him but it certainly is to me." To demonstrate the futility of comparing single yield readings of corn hybrids, a "uniform" field planted in the same hybrid was measured for yield in each 8 rows across the entire field (Fig.1). First, yields varied from a low of 79 bushels/acre to a high of 96 bushels/acre (17 bushel range). Second, even with the same hybrid one side of the field produced 8 bushels/acre more corn than did the other side. It is obvious from this example that comparing single strips whether narrow or wide cannot be relied upon to provide true information.

Now suppose a simulated test is conducted on the data by setting it up in a randomized complete block design as if hybrids A, B, C, D, and E were planted (Fig. 2). Remember, however, in this example it is the same hybrid throughout. A statistical analysis of the data in this case indicates that there are no difference in corn yield (Table 1). Furthermore, consider the fact that there is a 4 bushel/acre range in yield in the analysis. We can truly say that 4 bushels is not significant since it is in fact the same hybrid. In cases where different hybrids are actually compared in properly designed experiments, statements that no significance could be demonstrated even when the range in yield was substantial means that there was not enough consistent data in one direction to indicate confidently that one hybrid was better than another. RDP

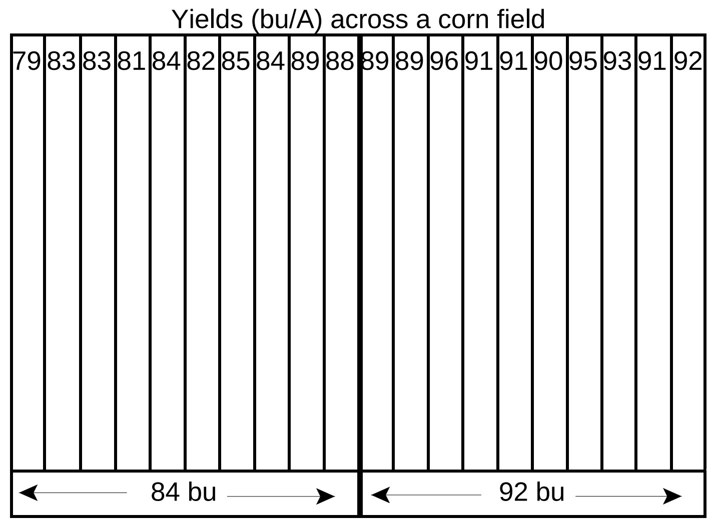

Fig. 1. Corn yields in bushels/acre from 8-row harvest strips across a field, Wharton County, TX, 2008.

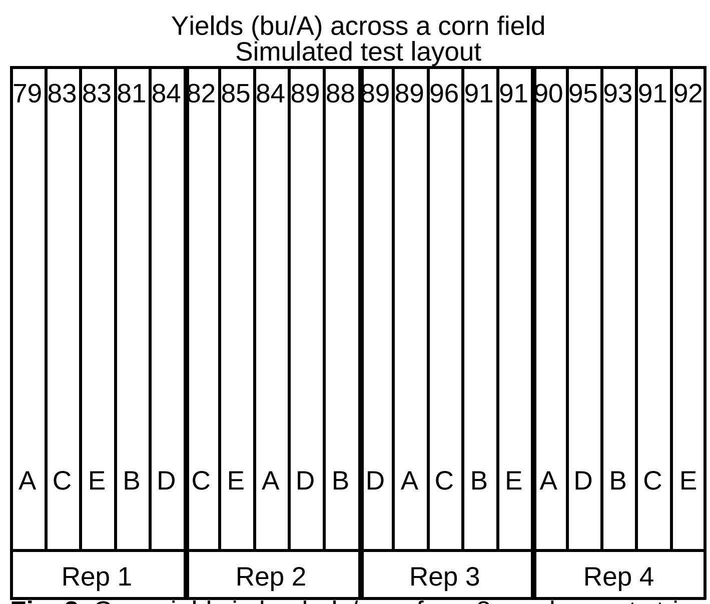

Fig. 2. Corn yields in bushels/acre from 8-row harvest strips across a field but showing how a randomized complete block experiment (simulated) might be imposed, Wharton County, TX, 2008.

Table 1. Statistical analysis (simulated) of corn yields using the same hybrid as if these were different, Wharton County, TX, 2008.

Treatment	Yield bu/A[1/]
A	85[a]
B	88[a]
C	88[a]
D	89[a]
E	88[a]
LSD (P=0.05)	NS
P > F	.2500

Means in a column followed by the same letter are not significantly different by ANOVA.
[1/] 4 bushels/acre range in yield

INTERESTING INSECTS

The following was taken from an article titled Entomological Bandwidth by Dr. May Berenbaum which appeared in the Winter 2008 issue of American Entomologist (Vol. 54:4, pages 196 - 197): The ability to predict the weather has been ascribed to a wide variety of arthropods, but most reports of arthropod meteorological forecasting are sufficiently vague as to instill doubt that any real biological phenomenon is in place. Far more impressive, however, is the ability of at least one species of cricket to measure actual temperatures. In 1897 Amos E. Dolbear, published a two-page paper in the journal *The American Naturalist* noting that although "an individual cricket chirps with no great regularity when by himself...At night, when great numbers are chirping the regularity is astonishing." Moreover, he pointed out, "The rate of chirp seems to be entirely determined by temperature and this to such a degree that one may easily compute the temperature when the number of chirps per minute is known." The paper concluded with a mathematical equation to convert cricket chirps into temperature, that is, $T = (N-40)/4$.

Dolbear, as a physicist, neglected to identify which species of cricket he was calibrating. It turns out that Dolbear's law doesn't apply to all crickets. Dolbear's mathematical equation was empirically derived from one particular species, the snowy tree cricket *Oecanthus niveus*. Moreover, subsequent studies, beginning only a year later, determined that the law isn't exactly unbreakable, either; chirp rates of the snowy tree cricket are affected by wind currents, physiological condition, and genetic background, among other things. And by 1899, Robert T. Edes published a note in *The American Naturalist* pointing out that "A few years ago a note appeared in the *Boston Transcript* calling attention to the very exact dependence of the rapidity of the chirps upon the temperature of the surrounding atmosphere and giving a formula therefore...possibly the same" as the one provided by Dolbear. Neither Dolbear nor Edes cited the paper by Margarette W. Brooke, published in *Popular Science Monthly* in 1881, titled "Influence of temperature on the chirp of the cricket," and reporting on her test of "a writer on the 'Salem Gazette,' signing himself W.G.B." who provided a "rule for estimating the temperature of the air by the number of chirps made by the crickets per minute: 'Take seventy-two as the number of strokes per minute at 60° temperature, and for every four strokes more add 1° and for every four strokes less deduct the same.' Her test revealed a "remarkable accordance," which raises the question as to why this relationship is not known as "W.G.B.'s law." RDP

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View our newsletter earlier on the internet at http://agfacts.tamu.edu/~rparker. Also pest management information is available at www.txaac.org.

2009 TEXAS GULF COAST GRAIN HANDLERS CONFERENCE

08:00-08:25	Registration: Coffee & refreshments
08:25-08:30	**Conference Objectives and Instructions -** Dale Rankin
08:30-9:30	**When to Aerate and for How Long-** Carol Jones
9:30-10:30	**Laws and Regulations for Stored Grain** - Don Renchie
10:30-10:45	Break
10:45-12:15 & 01:10-02:40	**Hands on Demonstrations**- *Factors That Impact Pest Management* (30 minutes each)
Session 1	**Grain Classification & Grading** - Gary Erskine
Session 2	**Increasing Effectiveness of Phosphine Fumigation-** Ed Hosoda
Session 3	**Bearing and Pulley Sizing for Equipment Operation and Improved IPM Practices -** Richard Sommerlatte
Session 4	**Outside and Inside Bin Safety-** Jim Warner
Session 5	**Insurance Protocol for Safety and IPM Practices -** Mickey Cooper
Session 6	**Man Lift Maintenance for Safe Pest Management Access** - Larry Barnes
12:15-12:25	**Ratchet Electrical Charges-** Harold Ross
12:25-01:10	Lunch
01:10-02:40	**Hands on Demonstrations Continued**
02:40-03:40	**Announcements, Wrap Up/CEU Forms/Evaluation** - Peter McGuill

Note: This course offers 5 CEU's to private, non-commercial and commercial applicators

PROGRAM SPEAKERS

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