Columns

6 Sugar Around the World

7 People and Places

28 Cane Planter - Rootstock Weevils: Out of Sight, Out of Mind or Emerging Pests

30 El Cañicultor - Corgojos de la Cepa: No los Vemos ni Nos Preocupan Pero ¿Son una Nueva Plaga?
By Bill White and Chris Carlton

32 Sugar and Energy Report – Ethanol: The Brazilian Puzzle

34 Reporte sobre Azúcar y Energía – Alcohol: El Rompecabezas Brasileño

36 Revisão de Açúcar e Energia – Álcool: o Quebra-cabeças Brasileiro
By Guilherme Rossi Machado Jr.

Features

8 American Society of Sugar Cane Technologists
42nd Annual Joint Meeting–Florida & Louisiana

8 Louisiana President’s Message
By Jeff Hoy

9 Excerpts from the Florida President's Message
By Aubrey P. Trotman

10 ASSCT Abstracts Presented

Departments

4 Publisher’s Corner

25 SugarSites

38 Advertisers’ Index

38 Coming Meetings

Cover
Louisiana sugarcane harvest
photo by Romney K. Richard
Rootstock Weevils:
*Out of Sight, Out of Mind or Emerging Pests*

In Louisiana, three species of weevils form a pest complex that is causing increasing concern among researchers in Louisiana. The three species making up this rootstock weevil complex are: *Apinocis submudas* (Buchanan), *A. deplanatus* (Casey), and *A. blanditus* (Casey) (Figures 1-3). The association of *Anacentrinus (=Apinocis) submudas* with sugarcane in Louisiana dates back to 1910. It was considered an insect of minor importance until 1931, when a serious weevil infestation was found near Arnaudville, LA. Researchers investigating this outbreak collected a second weevil that was subsequently described by Buchanan (1932) as *Anacentrus (=Apinocis) deplanatus*. In 2011 we added *Apinocis blanditus* to this complex based on specimens collected in pitfall traps placed in sugarcane fields. Specimens of these three species were identified based on the key provided by Buchanan (1932) and are deposited in the Louisiana State Arthropod Museum, Baton Rouge, LA. All three species are now included in the genus *Apinocis* based on nomenclatural changes proposed by Zimmerman (1994).

Much of our knowledge about the distribution and biology of rootstock weevils comes from the early literature. A number of weed species are reported as wild hosts. Among these weeds is vasengrass, *Paspalum urveli*, a common weed to Louisiana sugarcane fields. In sugarcane, eggs are laid singly in a small puncture made by the female weevil with her beak. Incubation requires from 4-16 days. The young larva tunnel into the vegetative eyes or into the rootstock. It is unclear whether they feed on the roots or not, but anecdotal evidence suggests that they do. As in some fields, the cane may display drought symptoms if feeding is severe. The larval period ranges from 35-55 days during the summer. Pupation occurs in a cell constructed near the rind in 8-13 days. Adult activity and breeding are continuous year round, with adults living about 40 days.

Early accounts of weevil damage to sugarcane are limited and few recommendations for control given. During 1931, sugarcane was planted twice a year; during spring and fall. Damage to vegetative eyes was greatest in spring planted sugarcane and therefore it was suggested that spring planting should be avoided. One early publication reported that no control measures were known, but in case the damage should continue, experiments in control will be conducted. Apparently, damage did not continue as subsequent references to rootstock weevils in the sugarcane literature are scarce.

Why our sudden interest in rootstock weevils? Is it a case of out of sight, out of mind? That is, have weevil numbers been sufficiently low that they have gone unnoticed, and suddenly we are encountering an emerging problem? Hunter (2002) suggested that it is necessary to distinguish between cyclic and eruptive population dynamics to determine the ecological cause of pest outbreaks. Cyclic dynamics are recognized as predictable oscillations. In contrast, if the frequency of a pest outbreak does not remain constant over time, the pest is said to exhibit eruptive dynamics. Eruptive outbreaks are difficult to predict and ecological causes are harder to identify. Maybe our weevils are tracking some aperiodic ecological variable such as climate (e.g. drought, temperature).

Out of necessity, we are taking greater notice of these tiny weevils and have begun research along several fronts. Unfortunately, soil insects are notoriously difficult to work on. Our first task will be working out efficient sampling methodology to determine field population densities. We have successfully used pitfall traps to determine the species composition of the pest complex. Also by extensive pitfall trapping, we have begun to look at seasonal distribution and abundance of weevils throughout the sugarcane growing area. Initial trapping shows that now, as in 1931, rootstock weevils are found throughout the cane growing area of Louisiana. And finally, we are learning to rear the weevils in the laboratory to conduct experiments in disease transmission and determining damage threshold levels. How much longer rootstock weevils will continue to be a con-
cern remains to be seen, but preemptive research into the natural history of these potential pests will put us in a better position to develop effective management strategies should they prove necessary.

Acknowledgement

We thank Michael Ferro, Louisiana State Arthropod Museum, for photographs of weevils.

References


CSIRO, Canberra, Australia. xviii+741 pp.

Bill White, USDA, ARS Sugarcane Research Laboratory, Houma, LA., can be reached by email at william.white@ars.usda.gov and Chris Carlton, Louisiana State Arthropod Museum, Louisiana State University Agricultural Center, Baton Rouge, LA can be reached by email at ccarlr@lsu.edu