The Economic Impact of New Technology Use in the US Apple Industry

Nichole Busdieker  
M.S. Student  
Agricultural and Consumer Economics  
University of Illinois  
438 Mumford Hall, 1301 W. Gregory Drive  
Urbana, IL 61801-3605  
E-mail: busdiek1@illinois.edu  
Fax: (217) 333-5538

Lia Nogueira  
Assistant Professor  
Agricultural and Consumer Economics  
University of Illinois  
433 Mumford Hall, 1301 W. Gregory Drive  
Urbana, IL, 61801-3605  
E-mail: nogueira@illinois.edu  
Telephone: (217) 244-3934, Fax: (217) 333-5538

Hayri Önal  
Professor  
Agricultural and Consumer Economics  
University of Illinois  
307 Mumford Hall, 1301 W. Gregory Drive  
Urbana, IL, 61801-3605  
E-mail: h-onal@illinois.edu  
Telephone: (217) 333-5507, Fax: (217) 333-5538

David Bullock  
Professor  
Agricultural and Consumer Economics  
University of Illinois  
309 Mumford Hall, 1301 W. Gregory Drive  
Urbana, IL, 61801-3605  
E-mail: dsbulloc@illinois.edu  
Telephone: (217) 333-5510, Fax: (217) 333-5538


Copyright 2011 by Nichole Busdieker, Lia Nogueira, Hayri Önal and David Bullock. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
The Economic Impact of New Technology Use in the U.S. Apple Industry

Nichole Busdieker, Lia Nogueira, Hayri Önal, David Bullock - University of Illinois, Urbana-Champaign

Objective: To evaluate the potential impact of new technologies to control fire blight on the current U.S. apple industry through dynamic simulations and analysis.

Model: Through a dynamic temporal and spatial partial equilibrium model, we evaluate the welfare of the apple industry. The investment decision for each grower is based on a known understanding of the industry and expected prices. The remaining value of the trees at the end of the horizon is considered as revenue to be expected based on the final years’ price in the horizon.

Technological Change
- GM technology outweighs impact of Bio-Control methods
  - Maintenance cost reduction more important than yield advantage
- Fewer acres in production
- Greater industry profit with technology

Conclusions: We provide evidence that through technology adoption the apple industry can thrive and consumers can benefit. In the adoption of the GM and bio-control technologies, fewer acres are required to fit the current industry demand. Our results show that maintenance cost reductions and the recovering of production lost to fire blight are important to both producers and consumers. The release of bio-control methods benefits growers and consumers when there is producer adoption hesitation due to consumer concerns about GM products, and when it is fully accepted.