



AGRO SOURCE™



CMNP Abscission Technology as a Harvesting Aide

Citrus Mechanical Harvesting
Field Day Briefing

Presented by Taw Richardson

AgroSource, Inc.

April 20, 2011

SWREC, Immokalee, Florida

Presentation Agenda

1. About AgroSource, Inc.
2. CMNP –
 - a. Project Background
 - b. Registration Status
 - c. Abscission Agent Opportunity
3. Summary and Conclusion

Who is AgroSource?

- An agrochemical company that –
 - develops, registers and commercializes biologically and synthetically derived crop products;
 - focuses on unique needs of growers for highly specialized products;
 - develops and cultivates close partnerships with production agriculture;
 - manufactures FireWall™ and FireLine™ for control of bacterial diseases and is
 - the global leader in abscission technologies



www.agrosorce.net

CMNP Project Background

- Over half a century of testing automated harvesting and abscission
- Leadership from FDOC to achieve mechanical harvesting and an abscission agent
- IFAS research and extension of mechanical harvesting and abscission agent candidates
- AgroSource register and commercialize CMNP abscission agent
- An intelligent partnership between industry, a public institution and a private company

Citrus Mechanical Harvesting UNIVERSITY OF FLORIDA IFAS

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History of Citrus Mechanical Harvesting

AGRO SOURCE™

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Abscission Agents

Current AgroSource research and development efforts are concentrated on **abscission agent technology**. Abscission agents are compounds designed to loosen fruit from the tree or plant just prior to harvesting – technology that will be used with the increasing adoption of automated harvesting in high-value specialty crops.

To help Florida citrus growers remain competitive in the world market, AgroSource is developing an abscission agent specifically designed for use with citrus mechanical harvesting equipment. Each season, an increasing number of Florida juice oranges are harvested mechanically; a trend driven by the high cost of hand harvesting, the limited availability of labor, and the disparity in labor costs with global competitors.

Put simply, citrus abscission agents increase the **efficiency** of mechanical harvesting equipment by allowing mechanical harvesters to capture a larger percentage of fruit from the tree in less time and with greater ease. And because harvest costs represent the largest portion of production costs, increased harvest efficiency by use of an appropriate abscission agent is expected to provide substantial cost savings to the industry.

AgroSource, in cooperation with the Florida Department of Citrus (FDOC), has already investigated and selected a suitable abscission agent, named CMNP, for citrus. This selection was based on results of extensive research by the University of Florida Institute of Food and Agricultural Sciences over several years and a clear understanding of the needs of the industry. Currently, AgroSource is pursuing formal registration of this compound with the United States Environment Protection Agency (EPA). As with all agrochemicals, this product must go through stringent testing and evaluation in support of its registration and ultimate commercialization.

Click [here](#) to learn more about CMNP registration status

For more information... 2011

History
Current MH Systems
Mass Harvesters
Robotics
Grove Design
Abscission
Tree Health
Economics
Processor Issues
Publications
Database
Extension Tools

Have a question?

is facing is still several the tree ment of a used

The Abscission Agent Opportunity

- Abscission Technology (CMNP) can –
 - reduce harvest costs by decreasing labor requirements, which will
 - create a new paradigm for crop harvesting
 - and thereby revolutionize harvesting of Florida processed oranges



The Abscission Agent Opportunity

- Advantages of abscission technology to mechanical harvesting
 - Reduce manual labor
 - Address limited, complicated and expensive labor issues
 - E-Verify
 - Lower fruit detachment force (FDF)
 - Less energy (CPM) required
 - Minimize tree and fruit damage
 - Limit equipment damage and repair
 - Increase recovery
 - Faster ground speeds
 - Solve the “late season” problem
 - Remove mature Valencias without impacting new crop

The Abscission Agent Opportunity

Advantages of abscission technology to –

- Manual harvesting
 - Increase speed of harvest
 - Reduce labor and management
 - Lower costs
 - Increase CMNP use



Manual harvesting of citrus with the aid of a ladder and bag.

The Abscission Agent Opportunity

Advantages of abscission technology to –

- Automated harvesting
 - Address specific needs that fall between manual and mechanical harvesting
 - Develop new equipment for automated harvesting
 - Design equipment to meet new grove architectures



The Abscission Agent Opportunity

– Integrate abscission technology into future grove management changes

- Advanced Citrus Production & Harvesting Systems Working Group
 - Higher planting density with suitable rootstocks
 - New equipment concepts including over the top harvesting
 - Model grove in Immokalee



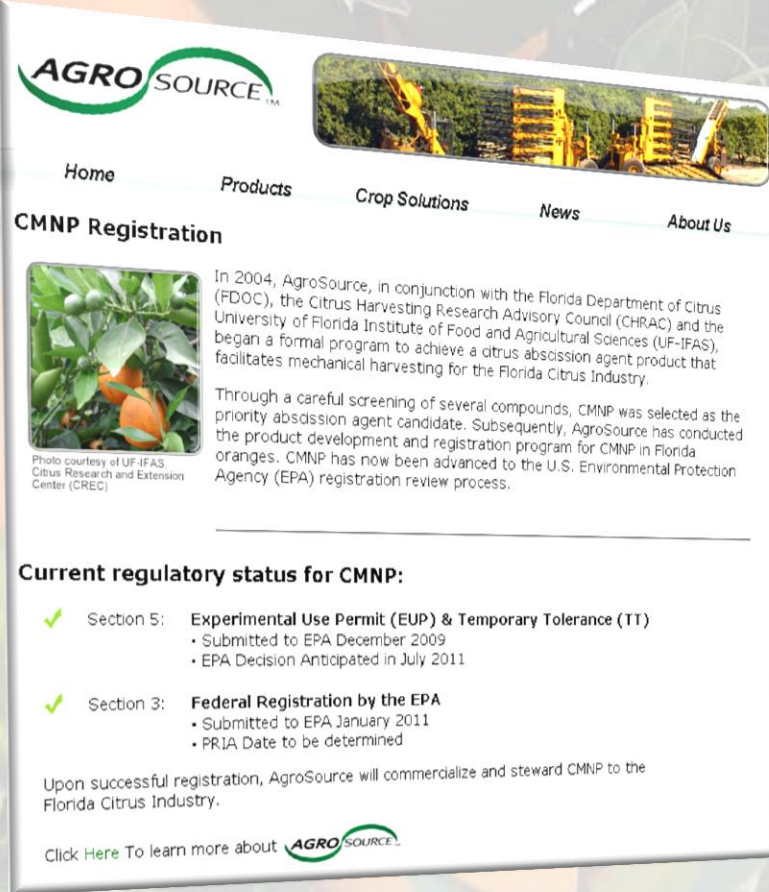
CMNP Abscission Agent

- Effective abscission agent for citrus
- Wide margin of safety
- EPA registration potential good
- May have a range of uses:
 - Mechanical harvesting
 - Automated harvesting
 - Manual harvesting
- Expected to reduce harvesting costs
- Should decrease dependence on manual labor



CMNP Registration Status

- Section 5 Experimental Use Permit and Temporary Tolerance
 - Submitted December 2009
- Section 3 Registration and Tolerance
 - Submitted January 2011
- EPA actively reviewing submission packages



The screenshot shows the AgroSource website with the following content:

- AGRO SOURCE™** logo and navigation menu: Home, Products, Crop Solutions, News, About Us.
- CMNP Registration** section with a photo of oranges and text:

In 2004, AgroSource, in conjunction with the Florida Department of Citrus (FDOC), the Citrus Harvesting Research Advisory Council (CHRAC) and the University of Florida Institute of Food and Agricultural Sciences (UF-IFAS), began a formal program to achieve a citrus abscission agent product that facilitates mechanical harvesting for the Florida Citrus Industry.

Through a careful screening of several compounds, CMNP was selected as the priority abscission agent candidate. Subsequently, AgroSource has conducted the product development and registration program for CMNP in Florida oranges. CMNP has now been advanced to the U.S. Environmental Protection Agency (EPA) registration review process.
- Current regulatory status for CMNP:**
 - ✓ **Section 5: Experimental Use Permit (EUP) & Temporary Tolerance (TT)**
 - Submitted to EPA December 2009
 - EPA Decision Anticipated in July 2011
 - ✓ **Section 3: Federal Registration by the EPA**
 - Submitted to EPA January 2011
 - PRIA Date to be determined
- Text: Upon successful registration, AgroSource will commercialize and steward CMNP to the Florida Citrus Industry.
- Text: Click Here To learn more about **AGRO SOURCE™**.

[www.agrosourcenet](http://www.agrosourcenet.com)

Summary and Conclusions

- AgroSource has worked collaboratively with FDOC, CHRAC and IFAS to bring CMNP abscission technology forward to Florida citrus growers
- Large-scale adoption of CMNP abscission technology can reduce harvest costs thereby creating a new paradigm for the industry
- Section 5 EUP for CMNP and Section 3 registration packages under review by EPA
- AgroSource looks forward to providing the Florida citrus industry a compelling value proposition for CMNP as a harvest aid; volumes are critical to achieving product pricing that will deliver the best possible return on investment